# THE REPORT

OF THE

# PRESIDENT

OF

# QUEEN'S COLLEGE, BELFAST,

FOR THE

## YEAR ENDING MARCH 31, 1866.

---

*Presented to both Houses of Parliament by Command of Her Majesty.*

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DUBLIN:
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FOR HER MAJESTY'S STATIONERY OFFICE.

1866.

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# PRESIDENT OF QUEEN'S COLLEGE, BELFAST,

FOR

THE YEAR ENDING MARCH 31, 1866.

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## TO THE QUEEN'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY,

I have the honour of presenting to your Majesty the following Report regarding the condition of this College for the year ending the 31st of March, 1866. In discharging this duty, it affords me great satisfaction to be enabled to record the subjoined statements in reference to the various departments of the College, which present continued evidence of its adaptation to the present state of literature and science, and to the educational demands of the country at large.

During this Session which commenced in October last, 413 students have been present in attendance on their different courses of lectures; whilst the general discipline of the College has been so well observed that hardly a case of its violation has come under my notice or the consideration of the Council. The diligence and advancement in learning of the great mass of the students, has been gratifying to the distinguished Professors who have been charged with their instruction. In the varied competitive examinations into which many of the students have entered, whether for the public service or for university and collegiate distinction, they have conferred honour on the College which produced them, and have reaped important benefits for themselves. This success in various arenas of intellectual conflict, whilst it reflects much credit on the students, affords another testimony to be added to many former evidences of the sound learning, the great ability, and the unflagging zeal of the eminent corps of Professors whom your Majesty has been pleased to place in their respective chairs. Knowing as I do the constant demands that are made on the time and talents of these gentlemen, and marking their determination to make this College a centre of science and literature worthy of its name and of the desires of its founders, I cannot withhold the expression of my thankfulness for their untiring efforts and their unquestionable success. Not the least agreeable part of my duty in presenting this Report, arises from the fact that my experience of the results of this Collegiate Session, in no degree diminishes the convictions I have ever felt respecting the perfect practicability and public advantages of united education carried on within the same walls, and in the same lecture rooms. Professors and students of the different religious denominations, meet and mingle here, exercising towards one another all due respect for the rights of conscience, forming friendships that endure, and affording a most salutary example that a fixed adherence to religious opinion is quite compatible with all the charities and amenities of public and social life.. In this respect also, the authorities of the College have fulfilled the mission assigned to them by your Majesty.

A great variety of Tables will be found in the Appendix to this Report; but I think it important to place the following Returns in the body of the Report itself. I wish to draw particular attention to the steady increase of students as brought out in Table No. I., from 154 in the Session 1852–53 up to 413 in the present year, of whom 360 are matriculated, and only 53 non-matriculated, the half of the latter being medical students. Of the total number of 154 who were on the lists in Session 1852–53, 53 were non-matriculated. This remarkable change as to the desire for graduation on the part of the students, is owing, in a great measure, to the public influence which the Queen's University in Ireland has attained and has exercised, to the high standard both in subjects and in the mode and nature of the examinations which that University has maintained, and to the stamp of value which is now admittedly impressed on its degrees and distinctions.

I.—NUMBERS and RELIGIOUS PERSUASIONS of STUDENTS attending Lectures in QUEEN'S COLLEGE, BELFAST, in each Session from its opening.

| SESSIONS. | Matriculated. | Non-Matriculated. | Total. | Established Church. | Roman Catholic. | Presbyterian. | Methodist. | Independent. | Various. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1849–50, . . | 90 | 105 | 195 | 33 | 5 | 145 | 4 | 1 | 7 | 195 |
| 1850–51, . . | 110 | 75 | 185 | 33 | 10 | 136 | 4 | 1 | 1 | 185 |
| 1851–52, . . | 120 | 69 | 189 | 40 | 14 | 129 | 5 | – | 1 | 189 |
| 1852–53, . . | 101 | 53 | 154 | 33 | 15 | 100 | 4 | – | 2 | 154 |
| 1853–54, . . | 114 | 54 | 168 | 36 | 14 | 107 | 6 | – | 5 | 168 |
| 1854–55, . . | 118 | 65 | 183 | 34 | 14 | 131 | 3 | – | 1 | 183 |
| 1855–56, . . | 119 | 74 | 193 | 33 | 19 | 131 | 5 | 2 | 3 | 193 |
| 1856–57, . . | 136 | 58 | 194 | 35 | 14 | 131 | 3 | 2 | 9 | 194 |
| 1857–58, . . | 153 | 54 | 207 | 31 | 14 | 154 | 4 | 1 | 3 | 207 |
| 1858–59, . . | 160 | 63 | 223 | 45 | 14 | 153 | 8 | 2 | 1 | 223 |
| 1859–60, . . | 199 | 58 | 257 | 43 | 16 | 184 | 8 | 2 | 4 | 257 |
| 1860-61, . . | 239 | 73 | 312 | 57 | 22 | 216 | 7 | – | 10 | 312 |
| 1861–62, . . | 299 | 76 | 375 | 59 | 17 | 256 | 13 | 4 | 16 | 375 |
| 1862–63, . . | 335 | 53 | 388 | 61 | 24 | 275 | 11 | 3 | 14 | 388 |
| 1863–64, . . | 340 | 47 | 387 | 63 | 26 | 261 | 10 | 3 | 24 | 387 |
| 1864–65, . . | 356 | 49 | 405 | 58 | 22 | 285 | 9 | 1 | 30 | 405 |
| 1865–66, . . | 360 | 53 | 413 | 60 | 19 | 281 | 13 | 2 | 38 | 413 |

## II.—NUMBERS and RELIGIOUS PERSUASIONS of STUDENTS who have entered QUEEN'S COLLEGE, BELFAST, in each year since its opening.

| SESSIONS. | Matriculated. | Non-Matriculated. | Total. | Established Church. | Roman Catholic. | Presbyterian. | Methodist. | Independent. | Various. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1849–50, . . | 90 | 105 | 195 | 33 | 5 | 145 | 4 | 1 | 7 | 195 |
| 1850–51, . . | 51 | 42 | 93 | 15 | 7 | 68 | 1 | – | 2 | 93 |
| 1851–52, . . | 42 | 40 | 82 | 25 | 7 | 47 | 2 | – | 1 | 82 |
| 1852–53, . . | 31 | 23 | 54 | 16 | 7 | 28 | 2 | – | 1 | 54 |
| 1853–54, . . | 39 | 23 | 62 | 14 | 5 | 36 | 3 | – | 4 | 62 |
| 1854–55, . . | 41 | 38 | 79 | 13 | 6 | 56 | 2 | – | 2 | 79 |
| 1855–56, . . | 33 | 29 | 62 | 17 | 5 | 36 | 2 | 2 | – | 62 |
| 1856–57, . . | 40 | 28 | 68 | 18 | 4 | 40 | 1 | – | 5 | 68 |
| 1857–58, . . | 43 | 28 | 71 | 8 | 6 | 55 | 2 | – | – | 71 |
| 1858–59, . . | 51 | 37 | 88 | 24 | 8 | 51 | 4 | 1 | – | 88 |
| 1859–60, . . | 66 | 24 | 90 | 14 | 6 | 64 | 4 | – | 2 | 90 |
| 1860–61, . . | 96 | 41 | 137 | 29 | 13 | 85 | 3 | – | 7 | 137 |
| 1861–62, . . | 114 | 38 | 152 | 27 | 5 | 101 | 6 | 3 | 10 | 152 |
| 1862–63, . . | 115 | 22 | 137 | 23 | 12 | 92 | 5 | – | 5 | 137 |
| 1863–64, . . | 109 | 18 | 127 | 25 | 5 | 86 | 3 | 1 | 7 | 127 |
| 1864–65, . . | 108 | 27 | 135 | 22 | 6 | 97 | 3 | – | 7 | 135 |
| 1865-66, . . | 88 | 30 | 118 | 17 | 7 | 83 | 5 | – | 6 | 117 |
|  | 1,157 | *593 | 1,750 | 339 | 114 | 1,170 | 52 | 8 | 66 | 1,750 |

## III.—RETURN showing the NUMBER of STUDENTS attending the Lectures of each PROFESSOR in each year since the opening of the College.

| PROFESSOR OF | 1849-50. | 1850-51. | 1851-52. | 1852-53. | 1853-54. | 1854-55. | 1855-56. | 1856-57. | 1857-58. | 1858-59. | 1859-60. | 1860-61. | 1861-62. | 1862-63. | 1863-64. | 1864-65. | 1865-66. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Greek, . . . . | 71 | 74 | 46 | 23 | 32 | 38 | 43 | 36 | 44 | 58 | 77 | 100 | 140 | 157 | 120 | 133 | 118 |
| Latin, . . . . | 63 | 72 | 44 | 25 | 32 | 35 | 40 | 29 | 44 | 54 | 72 | 94 | 139 | 149 | 113 | 118 | 112 |
| Mathematics, . . | 86 | 70 | 51 | 36 | 42 | 44 | 45 | 52 | 55 | 62 | 78 | 95 | 106 | 122 | 111 | 113 | 98 |
| English, . . . . | 52 | 46 | 53 | 35 | 44 | 44 | 51 | 43 | 56 | 65 | 73 | 100 | 116 | 135 | 125 | 128 | 113 |
| Modern Languages, . | 62 | 56 | 41 | 31 | 34 | 52 | 43 | 52 | 56 | 63 | 78 | 150 | 177 | 150 | 125 | 146 | 151 |
| Celtic, . . . . | The | Lect | ures | open | to | the | pub | lic. |  |  |  |  |  |  | Vac | ant. |  |
| Natural Philosophy, . | 48 | 43 | 61 | 29 | 40 | 35 | 35 | 37 | 43 | 34 | 46 | 95 | 95 | 104 | 106 | 102 | 116 |
| Natural History, . | 12 | 49 | 75 | 52 | 58 | 68 | 58 | 69 | 62 | 87 | 84 | 77 | 77 | 83 | 112 | 121 | 101 |
| Mineralogy, . . | †– | 6 | 14 | 13 | 15 | 13 | 9 | 20 | 13 | 11 | 16 |  |  |  |  |  |  |
| Logic and Metaphysics, | 3 | – | 45 | 39 | 44 | 45 | 43 | 51 | 46 | 54 | 44 | 79 | 106 | 114 | 103 | 91 | 116 |
| Chemistry, . . | 40 | 56 | 75 | 53 | 62 | 70 | 60 | 76 | 68 | 88 | 99 | 82 | 106 | 101 | 104 | 122 | 84 |
| Engineering, . . | 10 | 13 | 15 | 9 | 12 | 12 | 8 | 17 | 16 | 11 | 16 | 14 | 16 | 25 | 30 | 31 | 29 |
| Agriculture and Medical Jurisprudence, . . | 13 | 21 | 24 | 14 | 22 | 17 | 16 | 20 | 25 | 22 | 27 | 21 | 24 | 22 | –<br>25 | –<br>30 | –<br>30 |
| Anatomy, . . . | 35 | 44 | 55 | 61 | 53 | 63 | 65 | 46 | 52 | 68 | 81 | 101 | 107 | 105 | 114 | 132 | 138 |
| Medicine, . . . | 9 | 17 | 17 | 12 | 15 | 18 | 33 | 27 | 19 | 22 | 29 | 25 | 42 | 27 | 36 | 44 | 48 |
| Surgery, . . . | 24 | 15 | 26 | 29 | 28 | 30 | 48 | 32 | 30 | 29 | 39 | 51 | 53 | 54 | 47 | 50 | 55 |
| Midwifery, . . | 14 | 10 | 12 | 16 | 17 | 18 | 24 | 13 | 7 | 17 | 14 | 26 | 36 | 22 | 34 | 19 | 23 |
| Materia Medica, . | 11 | 14 | 16 | 17 | 17 | 23 | 25 | 11 | 18 | 22 | 27 | 33 | 38 | 37 | 29 | 38 | 47 |
| English Law, . . | 17 | 16 | 17 | 15 | 11 | 15 | 10 | 14 | 12 | 13 | 11 | 16 | 14 | 12 | 12 | 14 | 19 |
| Jurisprudence, . . | 11 | 11 | 23 | 10 | 19 | 11 | 15 | 12 | 27 | 20 | 23 | 19 | 20 | 29 | 27 | 31 | 34 |

This return is given more fully in detail in the Appendix, pp. 4, 5.

The return of Lectures delivered in each Session appears in pp. 11, 12 of the Appendix.

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* Of the 593 who entered as non-matriculated Students, 99 afterwards passed a matriculation examination. The College Register contains 1,256 matriculated and 494 non-matriculated, in all 1,750 students.

† Public.

IV.—RETURN of the Number of Medical Students in attendance in each Session.

| Session. | Matriculated. | Non-Matriculated. | Total. |
|---|---|---|---|
| 1849–50, | 28 | 27 | 55 |
| 1850–51, | 20 | 35 | 55 |
| 1851–52, | 25 | 39 | 64 |
| 1852–53, | 29 | 33 | 62 |
| 1853–54, | 29 | 37 | 66 |
| 1854–55, | 39 | 36 | 75 |
| 1855–56, | 33 | 48 | 81 |
| 1856–57, | 36 | 25 | 61 |
| 1857–58, | 35 | 32 | 67 |
| 1858–59, | 45 | 34 | 79 |
| 1859–60, | 56 | 39 | 95 |
| 1860–61, | 70 | 46 | 116 |
| 1861–62, | 81 | 48 | 129 |
| 1862–63, | 89 | 33 | 122 |
| 1863–64, | 110 | 33 | 143 |
| 1864–65, | 126 | 25 | 151 |
| 1865–66, | 130 | 29 | 159 |

The above tabular Returns establish the success of this College and its public and educational utility, and this at a time when Ireland is only recovering from a succession of trials which have affected all her interests, whilst her population has been greatly diminished.

The condition and continued prosperity of the Medical School are such as to justify the grant which your Majesty's Government has made for the accommodation of the Professors and Students of that important department. This College opened with 55 medical students, whose number now amounts to 159, of whom 130 are matriculated. The School of Anatomy has been attended this Session by 138 students. The General Hospital of Belfast affords opportunities which are rarely met with in any similar establishment for the instruction and practice of medical students. The number of cases of accident and disease constantly presenting themselves for attention in that hospital, sent in from a great seaport and manufacturing town and district, opens to the student of medicine a field for observation and practice as great as could be desired. Owing to the munificent bounty of two gentlemen of wealth, the hospital accommodation for patients has of late been materially increased.

The anatomical and medical rooms in the College grounds are nearly completed, and will be fully ready for occupation in October next. These, and the museum they are intended to contain, will be very extensive and most suitable for the accommodation of the large and prosperous Medical School.

The new Engineering Lecture-room has been appropriately fitted out for a department which continues to prosper under its excellent Professor. The foundation of the new Library, for which your Majesty's Government granted the necessary funds, has now been laid; and whilst I have to tender my thanks for the promptitude with which my application for this grant was responded to, I am also grateful for the rapidity with which steps have been taken for the immediate erection of this building. Its opening will allow the great hall of the College to revert to its original purpose, of being used for examinations and collegiate meetings, for which it is now, in its present condition, entirely unfitted.

The Secretary of the Queen's University has been pleased to furnish me with the subjoined statement of the number of degrees which were conferred by the Chancellor of the Queen's University during the last year. Of these, and of the exhibitions connected with them, a proportionate share was obtained by the students of Belfast College, who did not fail fully to hold their ground when thrown into competition with their rivals of the Cork and Galway Colleges.

I am certain that the students of the Queen's Colleges never could have approached the standard of acquirement which have secured their University and other distinctions but for the advantages of a steady collegiate culture and training.

The intercommunication of students with one another, and their attendance on the prelections of accomplished Professors, are, as a general rule, the surest foundations for University distinctions, as well as for all professional advancement in afterlife.

DEGREES, DIPLOMAS, CERTIFICATES, &c., conferred by the Queen's University in 1865.

| | |
|---|---|
| Degree of LL.D., | 1 |
| " of M.D., | 31 |
| " of M.CH., | 24 |
| " of M.A., | 15 |
| " of M.A., ad eundem, | 1 |
| " of LL.B., | 2 |
| " of LL.B., ad eundem, | 1 |
| " of B.A., | 56 |
| Diploma of C.E., | 7 |
| " of E.L., | 1 |
| In all, including the 2 ad eundem Degrees, | 139 |

Also,

| | |
|---|---|
| 51 | Candidates passed first University Examination in Arts. |
| 55 | " " first University Examination in Medicine. |
| 20 | " " first University Examination in Engineering. |
| 126 | |

Also,

16 Candidates obtained middle-class certificates.

Total, . . . . . . . 281

In accordance with the provisions of the Calendar, the sum of £1,400 was allocated at the beginning of the session to scholarships in the various departments, and £100 at the close of the session to the successful candidates for prizes at examination.

In addition to these sums, which accrue annually from the Consolidated Fund, the following special exhibitions were allocated during the year:—

1. Of the Exhibitions of the Queen's University founded by public subscription, originated by Sir Robert Peel, six were conferred last session upon four students of this College, viz.:—

J. C. Newsome, First Arts Exhibition, £20 a year, for three years; and the Exhibition in Classics, £10 a year, for three years.

H. M'L. Smith, Second Arts Exhibition, £15 a year, for three years; and the Exhibition in Mathematical Science, £10 a year, for three years.

J. E. Murphy, Third Arts Exhibition, £15 in the first year, £15 in the second, and £10 in the third.

J. Wilson, First Exhibition in Engineering, £20 a year, for two years.

2. The Tennant and Drennan Exhibitions of £5 each were conferred upon two students from the Royal Belfast Academical Institution.

3. The Wilson Exhibition of £20 was divided between two students.

4. Dr. Sullivan's Exhibition of £30 per annum for three years was conferred last October. Two other Sullivan Exhibitions of £15 per annum each, for three years, formerly conferred, are now being paid; which make up the total of £60 per annum conferred by this gentleman upon this College.

5. I have the satisfaction of stating that Mr. John Charters of this town has also with great munificence appropriated £120 per annum for 10 years to the following Exhibitions, each tenable for one year by students in this College:—

In Medicine, £50.

And for students who had previously studied in Belfast Academical Institution:—

In the Literary Division of Arts, three Exhibitions—one of £15 and two of £10 each.

In the Science Division of Arts, three Exhibitions—one of £15 and two of £10 each. Of these six have been appropriated during the past session.

Annexed is a full Appendix, giving an account in detail of the number of students in each class, the number of lectures delivered by each Professor, with a digest of the various subjects and courses of lectures, the papers used in the Matriculation, Scholarship, and Class Examinations, the Bursar's account of the expenditure of the College with the fees received, and other information, as it appears by the table of contents.

All of which is testified on behalf of the College by your Majesty's most dutiful servant,

P. SHULDHAM HENRY.

QUEEN'S COLLEGE, BELFAST,
*June* 1, 1866.

# APPENDIX.

## APPENDIX, No. 1.

*Appendix, No.* 1.

Queen's College, Belfast, and Queen's University.

### Queen's College, Belfast, and Queen's University.

The College is a Corporation under the name and style of "Queen's College, Belfast." It was founded under the provisions of the Act 8 & 9 Victoria, cap. 66, intituled "An Act to enable Her Majesty to endow new Colleges for the Advancement of Learning in Ireland." Under the powers given by this Act, it was determined to found three Colleges. Belfast, Cork, and Galway, were selected as the sites of these Colleges, and on the 30th day of December, 1845, letters patent were issued, incorporating them. The Presidents and Vice-Presidents of the three Colleges were formed into a Board, called "The Board of Queen's Colleges," for the purpose of drawing up the statutes and arranging the system of education to be pursued in them.

On the 4th of August, 1849, the Professors were appointed, and the Colleges opened for the reception of students on the 30th October, in the same year.

Letters patent, constituting the statutes, were issued on the 11th of December, 1849, and a further charter was issued in the year 1863.

#### The Council of the College.

The President.
The Vice-President.
P. Redfern, M.D., Professor of Anatomy.
J. Purser, M.A., Professor of Mathematics.
Wyville Thomson, LL.D., Professor of Natural History.
Alexander Gordon, M.D., Professor of Surgery.
James Thomson, A.M., Professor of Civil Engineering.
C. MacDouall, LL.D., Professor of Greek.

#### Professors.

| | |
|---|---|
| The Greek Language, . . | Charles MacDouall, LL.D., M.R.A.S. |
| The Latin Language, . . | William Nesbitt, M.A. |
| History and English Literature, | George Lillie Craik, LL.D. |
| Modern Languages, . . | A. L. Meissner, PH.D. |
| The Celtic Languages, . . | [Vacant.] |
| Mathematics, . . . | John Purser, M.A. |
| Natural Philosophy, . . | John Stevelly, LL.D. |
| Chemistry, . . . . | Thomas Andrews, M.D., F.R.S., M.R.I.A. |
| Natural History, . . | Wyville Thomson, LL.D., F.R.S.E., F.G.S., M.R.I.A. |
| Mineralogy and Geology, | |
| Logic and Metaphysics, . | Rev. James M'Cosh, LL.D. |
| Civil Engineering, . . | James Thomson, C.E., A.M. |
| Agriculture, . . . . | John F. Hodges, M.D., F.C.S. |
| Anatomy and Physiology, . | Peter Redfern, M.D. Lond., F.R.C.S. |
| Practice of Medicine, . . | James Cuming, M.D. |
| Practice of Surgery, . . | Alexander Gordon, M.D. |
| Materia Medica, . . . | James Seaton Reid, M.D. |
| Midwifery, . . . . | William Burden, M.D. |
| English Law, . . . | Echlin Molyneux, A.M. |
| Jurisprudence and Political Economy, . . . | T. E. Cliffe Leslie, LL.B. |

*Appendix, No. 1.*

Queen's College, Belfast, and Queen's University.

### OFFICE BEARERS.

| | |
|---|---|
| Curator of Museum, | The Professor of Mineralogy and Geology. |
| Registrar, | Rev. Richard Oulton, B.D. |
| Librarian, | Rev. George Hill. |
| Bursar, | Alexander Dickey, Esq. |

### DEANS OF RESIDENCES.

| | |
|---|---|
| United Church of England and Ireland, | Rev. Henry Murphy, A.M. |
| General Assembly of the Presbyterian Church in Ireland, | Rev. Henry Cooke, D.D., LL.D. |
| Irish Association of Non-Subscribing Presbyterians, | Rev. John Porter. |
| Wesleyan Methodists, | Rev. Joseph Wm. M'Kay. |

The students of the College are either Matriculated or Non-matriculated. All the courses for Matriculated students in Arts, including the Department of Civil Engineering, and also in the Faculties of Medicine and of Law, will be found in the Calendar, which is published annually.

Non-matriculated students, on paying the regulated class fees, and signing an engagement to observe order and discipline in the College, are permitted, without undergoing a preliminary examination, to attend any separate course or courses of Lectures; but are not permitted to become candidates for Scholarships or Prizes, or to enjoy other privileges of the Matriculated students.

Students in any of the Faculties can be admitted *ad eundem* from the other Queen's Colleges, or from any University capable of granting degrees.

### COLLEGIATE SCHOLARSHIPS.

In the FACULTY OF ARTS—30 Junior Scholarships, of £24 each, are awarded to Undergraduates—15 for proficiency in Literature, and 15 for proficiency in Science; also, 8 Senior Scholarships, of £40 each, to Graduates, one being limited to students who have also completed the course for the degree of LL.B.; and 5 Scholarships, of £20 each, to Engineering Students.

In the FACULTY OF MEDICINE—8 Junior Scholarships, of £25 each, are awarded.

In the FACULTY OF LAW—3 Junior Scholarships, of £20 each, are awarded.

### SCHOLARSHIPS AWARDED IN THE SEVERAL FACULTIES, 1864-65.

7 Senior Scholarships awarded.
20 Junior Scholarships in Arts awarded.
4 Engineering Scholarships.
8 Medical Scholarships.
3 Law Scholarships.

### 1865-66.

7 Senior Scholarships awarded.
20 Junior Scholarships in Arts awarded.
5 Engineering Scholarships.
8 Medical Scholarships.
3 Law Scholarships.

By an order of Her Majesty in Council, of 21st May, 1855, applying to the Civil Service, it is ordained that "every person nominated to a junior situation should obtain a certificate of qualification before entering on his duties. The ordinary classes in Queen's College embrace the branches required in the Examinations for the Civil Service, and also in the Examination for students intending to become candidates for commissions in the Royal Artillery and Engineers, and for appointments to the Civil Service of India, both of which are now thrown open to public competition.

### QUEEN'S UNIVERSITY IN IRELAND.

Queen's College, Belfast, and Queen's University.

The charter founding the Queen's University in Ireland received the Royal sanction in the year 1850, and it provides that its Senate should have the power of conferring upon the students of the Queen's Colleges of Belfast, Cork, and Galway, such degrees and distinctions, in the Faculties of Arts, Law, and Physic, as are granted and conferred in other Colleges and Universities of Great Britain and Ireland. It further ordains that any of the students of the three Queen's Colleges, who shall have obtained such degrees in any of the several Faculties of Arts, Medicine, and Law, as shall be conferred by the Chancellor and Senate of the Queen's University, shall be fully possessed of all such rights, privileges, and immunities, as belong to similar degrees granted by other Universities or Colleges, and shall be entitled to whatever rank and precedence is derived from similar degrees granted by other Universities.

By the charter of the Queen's University, candidates for Degrees in Medicine are required to have attended *at least two courses of Medical Lectures* in some one of the Queen's Colleges. For the remainder of the courses of Medical Lectures, authenticated certificates will be received from the Professors or Lecturers in Universities, Colleges, or Schools, recognised by the Senate of the Queen's University in Ireland.

The Chancellor and Senate also have the power of admitting, by special grace, Graduates of other Universities to similar and equal degrees.

In order to obtain a degree or diploma in the Queen's University it is necessary to enter the College as a Matriculated Student, to pass the entrance or Matriculation Examination, and to pursue a fixed course of study.

The Matriculated Students may be classified as follow:—

I. Those intending to proceed to the Degrees of A.B. and A.M.
II. „ „ Degree of M.D.
III. „ „ Diploma of Elementary Law.
IV. „ „ Degrees of LL.B. and LL.D.
V. „ „ Diploma of Civil Engineering.
VI. „ „ Diploma of Surgery.

### THE SENATE.

*Chancellor.*—The Right Honorable George William Frederick Earl of Clarendon, K.G., G.C.B., &c.
*Vice-Chancellor.*—The Right Hon. Maziere Brady, Lord Chancellor of Ireland, M.R.I.A., &c.
The Right Honorable William Earl of Rosse, K.ST.P., M.R.I.A., &c.
The Right Honorable Francis Blackburne, Lord Justice in Appeal, LL.D., V.-C.T.C.D., M.R.I.A.
The Right Honorable David R. Pigot, Lord Chief Baron of the Exchequer, M.R.I.A., &c.
The Rev. P. Shuldham Henry, D.D., President Queen's College, Belfast.
Sir Robert Kane, F.R.S., M.R.I.A., &c., President Queen's College, Cork.
Edward Berwick, Esq., President Queen's College, Galway.
Sir Richard Griffith, Bart., LL.D., M.R.I.A., Commissioner of Public Works.
Sir Dominic J. Corrigan, Bart., M.D., M.R.I.A., Physician in Ordinary to the Queen in Ireland.
Major-General Sir Thomas Aiskew Larcom, R.E., K.C.B., LL.D., F.R.S., M.R.I.A., &c.
James Gibson, A.M., M.R.I.A., Barrister-at-Law.
The Right Honorable James Henry Monahan, Lord Chief Justice of the Common Pleas.
Robert Adams, A.M., M.D.
Thomas A. Shillington, Esq., J.P.
The Right Honorable Sir Robert Peel, Bart., M.P.

*Secretary.*—G. Johnstone Stoney, M.A.—Office, Dublin Castle.

The Senate holds its sitting in Dublin Castle, where the examinations of the students of the three Colleges, for Graduation and University Exhibitions, are annually conducted by Examiners appointed by the Senate from year to year.

## APPENDIX, No. 2.

Return of the Number of Students attending each Class in the Queen's College, Belfast, in each Year.

| Class. | Session. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1849-50 | '50-51. | '51-52. | '52-53. | '53-54. | '54-55. | '55-56. | '56-57. |
| Greek—1st year, | 71 | 47 | 28 | 16 | 21 | 26 | 29 | 24 |
| ,, 2nd ,, | – | 27 | 18 | 7 | 11 | 12 | 14 | 12 |
| ,, Higher, | – | – | – | – | – | – | – | – |
| Latin—1st year, | 63 | 45 | 27 | 19 | 21 | 24 | 27 | 19 |
| ,, 2nd ,, | – | 27 | 17 | 6 | 11 | 11 | 13 | 10 |
| ,, Higher, | – | – | – | – | – | – | – | – |
| The English Language, | 52 | 46 | 28 | 20 | 24 | 28 | 31 | 24 |
| History and English Literature, | – | – | 25 | 15 | 20 | 16 | 20 | 19 |
| Senior ,, ,, | | | | | | | | |
| Modern Languages (French, German, Italian), | 62 | 36 | 41 | 27 | 34 | 37 | 29 | 40 |
| Senior ,, | – | 20 | 28 | 16 | 15 | 15 | 19 | 12 |
| The Celtic Languages, | *The Lectures in each Session open to the Public.* | | | | | | | – |
| Mathematics—1st year, | 86 | 58 | 40 | 25 | 29 | 33 | 30 | 35 |
| ,, 2nd ,, | – | 12 | 11 | 11 | 13 | 11 | 15 | 17 |
| ,, Higher, | – | – | – | – | – | – | – | – |
| Nat. Philosophy—Higher Class, | – | – | – | – | – | 6 | 6 | 8 |
| ,, Mathematical Physics, &c. | 32 | 32 | 46 | 24 | 29 | 23 | 24 | 19 |
| ,, Experimental Physics, | 48 | 59 | 57 | 29 | 40 | 34 | 36 | 37 |
| ,, Practical Mechanics, | 7 | 3 | 6 | 3 | 4 | 3 | 3 | 2 |
| Chemistry, | 37 | 53 | 63 | 44 | 51 | 60 | 50 | 70 |
| Practical Chemistry, | 6 | 7 | 14 | 10 | 15 | 14 | 12 | 10 |
| Laboratory, | – | 6 | 8 | 8 | 9 | 9 | 10 | 15 |
| Zoology, | 12 | 34 | 35 | 29 | 31 | 43 | 31 | 43 |
| Botany, | 12 | 49 | 46 | 35 | 37 | 46 | 36 | 44 |
| Physical Geography, | – | – | 29 | 17 | 21 | 19 | 20 | 21 |
| Logic, | 3 | – | 27 | 17 | 21 | 26 | 20 | 27 |
| Metaphysics, | – | – | 18 | 15 | 16 | 11 | 17 | 20 |
| Higher Logic and Metaphysics, | – | – | 6 | 7 | 7 | 8 | 6 | 7 |
| Mineralogy and Geology, | *Public.* | 6 | 14 | 13 | 15 | 13 | 9 | 20 |
| Surveying, | 10 | 9 | 9 | 6 | 6 | 9 | 4 | – |
| Civil Engineering, | – | 4 | 6 | 3 | 4 | 3 | 4 | 17 |
| Theory of Agriculture, | 11 | 8 | 7 | 2 | 6 | 5 | 5 | 4 |
| Practice of Agriculture, | – | 5 | 3 | 2 | 5 | 5 | 1 | 1 |
| Diseases of Farm Animals, | – | 5 | 3 | 2 | 5 | 5 | 1 | 1 |
| Medical Jurisprudence, | 2 | 8 | 14 | 10 | 13 | 8 | 10 | 15 |
| Anatomy, | 25 | 36 | 48 | 45 | 44 | 51 | 44 | 39 |
| Practical Anatomy, | 27 | 32 | 35 | 49 | 41 | 46 | 53 | 33 |
| Practice of Medicine, | 9 | 17 | 17 | 12 | 15 | 18 | 33 | 27 |
| Practice of Surgery, | 24 | 15 | 26 | 29 | 28 | 30 | 48 | 32 |
| Materia Medica, | 11 | 14 | 16 | 17 | 17 | 23 | 25 | 11 |
| Midwifery, | 14 | 10 | 12 | 16 | 17 | 18 | 24 | 13 |
| Law of Property, | 17 | 16 | 17 | 15 | 11 | 5 | 10 | 14 |
| Equity of Bankruptcy, | | | | | | | | |
| Common and Criminal Law, | | | | | | | | |
| Evidence and Pleading, | | | | | | | | |
| Jurisprudence and Political Economy, Arts, | – | – | 12 | 2 | 9 | 6 | 8 | 2 |
| Civil Law, | 11 | 11 | 13 | 8 | 10 | 5 | 9 | 10 |
| Constitutional, Colonial, and International Law, | | | | | | | | |
| Jurisprudence, | | | | | | | | |
| Arabic, | – | – | – | – | – | – | – | – |
| Hindustani, | – | – | – | – | – | – | – | – |
| Sanskrit, | – | – | – | – | – | – | – | – |

## APPENDIX, No. 2—*continued.*

RETURN of the NUMBER of STUDENTS attending each CLASS in the Queen's College, Belfast, in each Year—*continued.*

| CLASS. | SESSION. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | '57–58. | '58–59. | '59–60. | '60–61. | '61–62. | '62–63. | '63–64. | '64–65. | '65–66. |
| Greek—1st year, | 31 | 36 | 45 | 69 | 81 | 83 | 66 | 79 | 63 |
| ,, 2nd ,, | 13 | 17 | 23 | 25 | 49 | 63 | 44 | 40 | 49 |
| ,, Higher, | – | 5 | 4 | 4 | 7 | 7 | 9 | 12 | 6 |
| Latin—1st year, | 33 | 34 | 46 | 69 | 84 | 83 | 65 | 78 | 64 |
| ,, 2nd ,, | 11 | 18 | 22 | 23 | 49 | 60 | 40 | 33 | 44 |
| ,, Higher, | – | 2 | 3 | 2 | 6 | 6 | 8 | 7 | 4 |
| The English Language, | 36 | 41 | 49 | 72 | 85 | 85 | 70 | 80 | 67 |
| History, | 20 | 24 | 24 | 28 | 5 | 8 | 6 | 4 | 4 |
| English Literature, | | | | | 30 | 41 | 52 | 48 | 42 |
| Modern Languages (French, German, Italian), | 40 | 50 | 76 | 140 | 124 | 110 | 99 | 110 | 115 |
| Senior ,, | 16 | 13 | 17 | 10 | 54 | 43 | 26 | 36 | 36 |
| The Celtic Languages, | *The Lectures in each Session open to the Public.* | | | | | | – | – | – |
| Mathematics—1st year, | 39 | 45 | 61 | 83 | 93 | 102 | 85 | 92 | 75 |
| ,, 2nd ,, | 16 | 14 | 13 | 13 | 13 | 15 | 20 | 17 | 19 |
| ,, Higher, | – | 4 | 6 | 3 | – | 5 | 6 | 4 | 4 |
| Nat. Philosophy—Higher Class, | 7 | 4 | 9 | – | – | – | – | 5 | 4 |
| ,, Mathematical Physics, &c. | 26 | 25 | 24 | 64 | 67 | 72 | 69 | 60 | 68 |
| ,, Experimental Physics, | 41 | 28 | 42 | 87 | 86 | 94 | 95 | 87 | 120 |
| Natural Philosophy applied, | 7 | 3 | 4 | 4 | – | 2 | 5 | 6 | 7 |
| Chemistry, | 60 | 74 | 81 | 64* | 89 | 89 | 81 | 93 | 95 |
| Practical Chemistry, | 11 | 14 | 21 | 21 | 20 | 24 | 28 | 44 | –§ |
| Laboratory, | 10 | 11 | 10 | 12 | 15 | 15 | 8 | 14 | 16 |
| Zoology, | 34 | 63 | 56 | 37* | 57 | 66 | 90 | 82 | 84 |
| Botany, | 34 | 62 | 55 | 40* | 56 | 62 | 90 | 92 | –§ |
| Physical Geography, | 28 | 23 | 28 | 30 | 7† | 7 | – | – | – |
| Logic, | 22 | 29 | 29 | 35 | 65 | 66 | 57 | 49 | 68 |
| Metaphysics, | 15 | 19 | 15 | 24 | 22 | 34 | 40 | 40 | 41 |
| Higher Logic, | 9 | 8 | – | – | 10 | 12 | 25 | 14 | 24 |
| Mineralogy and Geology, | 13 | 11 | 16 | 7‡ | 11 | 10 | 12 | 14 | 15 |
| Engineering, 1st year, | 7 | 7 | 12 | 9 | 10 | 11 | 15 | 15 | 14 |
| Engineering, 2nd year, lectures, practice, | 7 | 3 | 4 | 4 | 6 | 11 | 8 | 12<br>12 | 10<br>9 |
| Engineering, 3rd year, lectures, practice, | – | – | – | – | – | 3 | 7 | 7<br>7 | 7<br>7 |
| Theory of Agriculture, | 7 | 7 | 7 | 6 | 6 | 6 | – | – | – |
| Practice of Agriculture, | 3 | 1 | 4 | 3 | 1 | – | – | – | – |
| Diseases of Farm Animals, | 4 | 2 | 3 | 2 | 1 | – | – | – | – |
| Medical Jurisprudence, | 16 | 13 | 17 | 14 | 18 | 16 | 25 | 30 | 28 |
| Anatomy, | 39 | 59 | 60 | 86 | 83 | 83 | 87 | 99 | 109 |
| Practical Anatomy, | 41 | 44 | 62 | 80 | 85 | 91 | 96 | 126 | 124 |
| Practice of Medicine, | 19 | 22 | 29 | 25 | 42 | 27 | 36 | 44 | 48 |
| Practice of Surgery, | 30 | 29 | 39 | 51 | 53 | 53 | 46 | 48 | 55 |
| Materia Medica, | 18 | 22 | 27 | 23 | 38 | 37 | 29 | 38 | 47 |
| Midwifery, | 7 | 17 | 14 | 26 | 36 | 22 | 34 | 19 | 23 |
| Law of Property,<br>Equity and Bankruptcy,<br>Common and Criminal Law,<br>Evidence and Pleading, | 12 | 13 | 16 | 16 | 14 | 12 | 12 | 14 | 19 |
| Political Economy, Arts, | 18 | 9 | 7 | 10 | 8 | 18 | 17 | 20 | 15 |
| Civil Law; Constitutional, Colonial, and International Law; Jurisprudence, | 10 | 11 | 17 | 10 | 12 | 11 | 10 | 11 | 19 |
| Arabic, | – | – | 1 | – | – | – | – | – | – |
| Hindustani, | – | – | 2 | 3 | 2 | 3 | – | – | – |
| Sanskrit, | – | – | 6 | 3 | 4 | 5 | 4 | 4 | – |
| Operative Surgery, | – | – | – | – | – | 11 | 2 | – | 2 |

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* No Arts Students this Session, owing to change of Statutes.

† Not now required in third year Arts.

‡ No Engineering Students this Session, owing to change of Statutes.

§ Classes not yet formed.

## APPENDIX,

RETURN of the AMOUNT of FEES received by each

| Professor of | 1849–50. | 1850–51. | 1851–52. | 1852–53. | 1853–54. | 1854–55. | 1855–56. |
|---|---|---|---|---|---|---|---|
| | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Greek, . . . | *88 10 0 | 83 0 0 | 50 0 0 | 27 5 0 | 38 5 0 | 46 5 0 | 51 15 0 |
| Latin, . . . | *73 15 0 | 79 0 0 | 50 10 0 | 31 5 0 | 38 5 0 | 44 5 0 | 47 15 0 |
| English History and Literature, . . | 50 5 0 | 50 5 0 | 47 10 0 | 31 5 0 | 43 5 0 | 45 5 0 | 59 5 0 |
| Logic & Metaphysics, | 6 0 0 | – | † 59 5 0 | 34 5 0 | 37 15 0 | 41 0 0 | 41 15 0 |
| Mathematics, . . | 116 15 0 | 97 10 0 | 69 15 0 | 43 0 0 | 54 10 0 | 59 0 0 | 60 10 0 |
| Natural Philosophy, | 79 5 0 | 70 15 0 | 99 10 0 | 47 0 0 | 73 15 0 | 76 15 0 | 59 10 0 |
| Chemistry, . <br> Practical Chemistry | 85 5 0 | 104 0 0 | 117 5 0 | 91 10 0 | 111 10 0 | 131 15 0 | 105 10 0 |
| Anatomy and Physiology, . <br> Practical Anatomy, | 143 0 0 | 170 0 0 | 195 15 0 | 230 10 0 | 228 0 0 | 250 0 0 | 256 0 0 |
| Natural History and Botany, . . . | 20 10 0 | 69 0 0 | 70 15 0 | 50 15 0 | 55 0 0 | 76 15 0 | 59 10 0 |
| Modern Languages, | 97 0 0 | 84 0 0 | 63 0 0 | 50 0 0 | 61 0 0 | 85 0 0 | 74 0 0 |
| Mineralogy and Geology, . . . | – | 7 10 0 | 24 15 0 | 17 15 0 | 20 15 0 | 18 0 0 | 12 10 0 |
| Jurisprudence and Political Economy, | 20 0 0 | 21 0 0 | 35 15 0 | 18 15 0 | 28 0 0 | 14 10 0 | 29 5 0 |
| English Law, . | 32 0 0 | 29 0 0 | 37 0 0 | 23 0 0 | 20 0 0 | 16 0 0 | 21 0 0 |
| Civil Engineering, . | 16 0 0 | 24 10 0 | 22 0 0 | 14 0 0 | 17 15 0 | 21 0 0 | 13 10 0 |
| Agriculture and Medical Jurisprudence, | 15 10 0 | 41 0 0 | 49 5 0 | 22 0 0 | 46 0 0 | 32 15 0 | 26 0 0 |
| Practice of Medicine, | 17 0 0 | 31 0 0 | 32 0 0 | 18 0 0 | 30 0 0 | 30 0 0 | 56 0 0 |
| Surgery, . . | 41 0 0 | 21 10 0 | 36 0 0 | 51 0 0 | 43 0 0 | 43 0 0 | 74 0 0 |
| Materia Medica, . | 22 0 0 | 28 0 0 | 26 0 0 | 29 0 0 | 33 0 0 | 43 0 0 | 45 0 0 |
| Midwifery, . . | 28 0 0 | 18 0 0 | 22 0 0 | 27 0 0 | 31 0 0 | 33 0 0 | 44 0 0 |
| Teacher of Drawing, | – | – | – | – | – | – | – |

* In the Session of 1849–50, Medical Students were required to attend the Greek and Latin Classes, but have since been exempt from attending either class.

† Professor M'Cosh was appointed in Session 1851–52, and taught and received fees from Students properly belonging to the previous Session.

*Queen's College, Belfast, March,* 1866.

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*Appendix, No. 4.*

Expenditure of One Year's Additional Grant.

## APPENDIX,

ACCOUNT of the EXPENDITURE of ONE YEAR'S ADDITIONAL GRANT

1. Library of Ancient and Modern Literature and Philology:

| | £ | s. | d. |
|---|---|---|---|
| Ancient Classical Languages and Philology, . . . | 38 | 6 | 9 |
| English History and Literature, . . . . | 26 | 8 | 3 |
| Foreign Modern Languages, . . . . . | 17 | 7 | 0 |
| Works of General Interest, &c., . . . . . | 82 | 18 | 0 |
| | 165 | 0 | 0 |

2. Libraries, Museum, &c., Mathematical, Physical, and Chemical Sciences:

| | | | |
|---|---|---|---|
| Mathematical and Physical Libraries, . . . . | 20 | 9 | 8 |
| Chemical Library, . . . . . | 22 | 16 | 11 |
| Museum and Cabinet of Physical Science, . . . | 28 | 12 | 2 |
| ,, Laboratory, Chemical Science, . . . | 39 | 19 | 1 |
| | 111 | 17 | 10 |

## No. 3.

## Professor in the Queen's College, Belfast, in each Year.

| 1856-57. | 1857-58. | 1858-59. | 1859-60. | 1860-61. | 1861-62. | 1862-63. | 1863-64. | 1864-65. | 1865-66. |
|---|---|---|---|---|---|---|---|---|---|
| £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| 44 15 0 | 51 0 0 | 78 0 0 | *93 5 0 | *131 15 0 | *186 0 0 | *187 15 0 | *221 0 0 | 233 10 0 | 212 0 0 |
| 39 15 0 | 53 0 0 | 67 0 0 | †90 0 0 | 127 15 0 | 185 0 0 | 185 15 0 | 211 0 0 | 220 10 0 | 202 0 0 |
| 43 15 0 | 57 10 0 | 69 0 0 | 94 15 0 | 117 5 0 | 155 10 0 | 164 5 0 | 163 10 0 | 162 10 0 | 131 10 0 |
| 48 5 0 | 46 15 0 | 68 10 0 | 39 0 0 | 58 10 0 | 106 5 0 | 134 10 0 | 173 10 0 | 143 0 0 | 183 10 0 |
| 62 15 0 | 69 10 0 | 97 10 0 | 139 10 0 | 156 0 0 | 183 5 0 | 211 5 0 | 201 0 0 | 208 0 0 | 173 0 0 |
| 62 15 0 | 72 0 0 | 66 10 0 | 61 5 0 | 180 10 0 | 178 15 0 | 194 10 0 | 183 0 0 | 186 0 0 | 208 0 0 |
| 133 0 0 | 113 10 0 | 147 5 0 | 184 0 0 | 167 0 0 | 195 15 0 | 210 5 0 | 213 10 0 | 264 10 0 | ‖165 0 0 |
| 181 0 0 | 206 0 0 | 262 10 0 | 307 0 0 | 427 10 0 | ‡432 10 0 | ‡425 10 0 | ‡453 10 0 | 567 10 0 | 544 0 0 |
| 56 0 0 | 52 10 0 | 105 5 0 | 94 10 0 | 70 0 0 | 96 10 0 | 120 5 0 | 157 0 0 | 170 0 0 | 144 0 0 |
| 86 0 0 | 96 0 0 | 120 0 0 | 159 10 0 | 277 0 0 | 319 5 0 | 270 15 0 | 231 0 0 | 278 0 0 | 247 0 0 |
| 37 0 0 | 20 5 0 | 21 15 0 | 24 15 0 | 11 10 0 | 16 5 0 | 20 10 10 | 22 0 0 | 25 0 0 | 24 0 0 |
| 22 10 0 | 31 15 0 | 28 10 0 | 36 10 0 | 28 10 0 | 25 15 0 | 37 10 0 | 38 0 0 | 51 0 0 | 51 0 0 |
| 27 0 0 | 21 0 0 | 25 0 0 | 28 0 0 | 28 0 0 | 25 0 0 | 21 0 0 | 18 0 0 | 20 0 0 | 25 0 0 |
| 27 0 0 | 22 0 0 | 22 15 0 | 24 15 0 | 32 0 0 | 40 15 0 | 70 0 0 | 82 0 0 | 97 0 0 | 79 0 0 |
| 25 10 0 | 40 5 0 | 31 5 0 | 47 0 0 | 43 0 0 | §44 0 0 | §36 15 0 | 48 0 0 | 55 0 0 | 48 0 0 |
| 43 10 0 | 26 0 0 | 37 0 0 | 44 0 0 | 37 0 0 | 64 10 0 | 46 0 0 | 59 0 0 | 74 0 0 | 77 0 0 |
| 42 10 0 | 34 0 0 | 46 0 0 | 65 10 0 | 79 13 0 | 84 12 0 | 96 11 0 | 73 0 0 | 82 0 0 | 94 0 0 |
| 20 0 0 | 34 0 0 | 39 0 0 | 50 0 0 | 60 0 0 | 69 0 0 | 70 0 0 | 59 0 0 | 73 0 0 | 83 0 0 |
| 24 0 0 | 12 0 0 | 28 0 0 | 25 0 0 | 48 0 0 | 63 0 0 | 36 0 0 | 66 0 0 | 36 0 0 | 42 0 0 |
| 32 0 0 | 25 0 0 | 26 0 0 | 22 0 0 | – | – | – | – | – | – |

* Besides for Sanskrit and Hindustani 1859-60, £35; 1860-61, £22 10*s.*; 1861-62, £25; 1862-63, £32 10*s.*; 1863-64, £20; 1864-5, £20.

† Besides for Arabic in 1859-60, £5.

‡ The Professor of Anatomy pays to his Demonstrator a portion of the fees for Practical Anatomy.

§ No endowment for Medical Jurisprudence. Professor Hodges delivers the lectures, receiving only class fees.

‖ Practical Chemistry fees not yet received—Class not yet opened.

ALEXANDER DICKEY, *Bursar.*

## No. 4.

*Appendix, No. 4.*

Expenditure of One Year's Additional Grant.

## to the Queen's College, Belfast, ending 31st March, 1865.

3. Libraries, Museum, and Collection of Objects of the Department of the Natural Sciences:

| | £ s. d. |
|---|---|
| Library of Natural History, | 13 10 1 |
| ,, Geology and Mineralogy, | 21 14 1 |
| Museum of Natural History, | 41 9 9 |
| ,, Geology and Mineralogy, | 44 10 7 |
| | 121 4 6 |

4. Libraries, Museums, and Collections of Objects of the Departments of Engineering and Agriculture:

| | |
|---|---|
| Library of Engineering, | 13 2 0 |
| Instruments and Collections of Engineering, | 32 1 0 |
| | 45 3 0 |

*Appendix, No. 4.*

Expenditure of One Year's Additional Grant.

## APPENDIX, No. 4—*continued.*

## ACCOUNT of the EXPENDITURE of ONE YEAR'S ADDITIONAL GRANT to the Queen's College, Belfast, ending 31st March, 1865—*continued.*

| | £ | s. | d. |
|---|---|---|---|
| 5. Museum and Library of Medical Science: | | | |
| Library of Medical Works, | 56 | 9 | 6 |
| Anatomical and Pathological Museums, and Rent of Anatomical Rooms, | 77 | 15 | 11 |
| Surgical Museum, | 3 | 16 | 6 |
| Medical Jurisprudence, | 25 | 1 | 0 |
| | 163 | 2 | 11 |
| 6. Library of Metaphysical, Legal, and Economical Science: | | | |
| Law, Jurisprudence, and Political Economy, | 9 | 14 | 1 |
| Metaphysics, | 27 | 7 | 7 |
| | 37 | 1 | 8 |
| 7. Printing, Stationery, Advertising, Postages, Office Expenses, &c., | 298 | 11 | 2 |
| 8. Heating and Lighting, | 134 | 11 | 1 |
| 9. Grounds, £48 7*s.* 6*d.*; Plants, £10, | 58 | 7 | 6 |
| | 1,134 | 19 | 8 |
| Balance in Bank of Ireland Office, 31st March, 1865, | 318 | 9 | 9 |
| Total, | 1,453 | 9 | 5 |

| | £ | s. | d. |
|---|---|---|---|
| Amount of One Year's additional Grant, | 1,000 | 0 | 0 |
| College and Matriculation Fees, | 129 | 0 | 0 |
| Received for Calendars and Fines, | 6 | 2 | 6 |
| Balance in Bank, 31st March, 1864, | 318 | 6 | 11 |
| Total, | 1,453 | 9 | 5 |

The Accounts of the College up to 31st March, 1865, have been examined and found correct by the Commissioners for Auditing the Public Accounts.

*March*, 1866.

ALEXANDER DICKEY, *Bursar.*

# APPENDIX, No. 5.

## GENERAL CLASS EXAMINATIONS, Queen's College, Belfast.

| — | SESSION 1864–65. | | | A.M. | P.M. | SESSION 1865–66. | | | A.M. | P.M. |
|---|---|---|---|---|---|---|---|---|---|---|
| The English Language, | Saturday, | January | 14 | — | 12—4 | Saturday, | January | 13 | — | 12—4 |
| Logic, | Saturday, | February | 11 | 9—12 | — | Saturday, | February | 10 | 9—12 | — |
| Physical Geography, | Wednesday, | April | 12 | 9—12 | — | Wednesday, | February | 28 | 10—1 | — |
| Mineralogy and Geology, | Wednesday, | April | 12 | — | 2—5 | Wednesday, | February | 28 | 10—1 | — |
| Zoology, | Saturday, | March | 4 | 9—12 | — | Saturday, | March | 3 | 10—1 | — |
| Metaphysics, | Tuesday, | April | 11 | 9—12 | and 2—5 | Tuesday, | March | 27 | 9—12 | and 2—5 |
| English Literature, | Thursday, | April | 13 | 9—12 | and 2—5 | Thursday, | March | 29 | 9—12 | and 2—5 |
| Practical Anatomy, | Saturday, | April | 22 | 9—12 | — | Saturday, | April | 21 | 9—12 | — |
| Practice of Medicine, | Wednesday, | April | 26 | 9—12 | — | Thursday, | April | 26 | 9—12 | — |
| Midwifery, | Wednesday, | April | 26 | — | 2—5 | Thursday, | April | 26 | — | 2—5 |
| Anatomy and Physiology, | Thursday, | April | 27 | 9—12 | and 2—5 | Friday, | April | 27 | 9—12 | and 2—5 |
| Materia Medica, | Friday, | April | 28 | 9—12 | — | Saturday, | April | 28 | 9—12 | — |
| Practice of Surgery, | Friday, | April | 28 | — | 2—5 | Saturday, | April | 28 | — | 2—5 |
| Medical Jurisprudence, | Saturday, | April | 29 | — | 2—5 | Monday, | April | 30 | 9—12 | — |
| Modern Languages, | Tuesday, | May | 30 | 9—12 | and 2—5 | Tuesday, | May | 29 | 9—12 | and 2—5 |
| Greek (First Year), | Wednesday, | May | 31 | 9—12 | ,, 2—5 | Wednesday, | May | 30 | 9—12 | ,, 2—5 |
| ,, (Second Year), | Thursday, | June | 1 | 9—12 | ,, 2—5 | Thursday, | May | 31 | 9—12 | ,, 2—5 |
| Latin (First Year), | Thursday, | June | 1 | 9—12 | ,, 2—5 | Thursday, | May | 31 | 9—12 | ,, 2—5 |
| ,, (Second Year), | Wednesday, | May | 31 | 9—12 | ,, 2—5 | Wednesday, | May | 30 | 9—12 | ,, 2—5 |
| Engineering, 1st, 2nd, and 3rd years, | Thursday, | June | 1 | 9—12 | ,, 2—5 | Thursday, | May | 31 | 9—12 | ,, 2—5 |
| Office and Fieldwork, | | | | | | Wednesday, | May | 30 | — | 2—5 |
| Mathematics, | Friday, | June | 2 | 9—12 | ,, 2—5 | Friday, | June | 1 | 9—12 | and 2—5 |
| Natural Philosophy, | Saturday, | June | 3 | 9—12 | ,, 2—5 | Saturday, | June | 2 | 9—12 | ,, 2—5 |
| Chemistry, | Monday, | June | 5 | 9—12 | ,, 2—5 | Monday, | June | 4 | 9—12 | ,, 2—5 |
| History, | Tuesday, | June | 6 | 9—12 | — | Tuesday, | June | 5 | — | 2—5 |

**General Examination of Students in Law, and also of other Students in Political Economy, Botany, and Practical Chemistry at the close of the Lectures on these subjects.**

Appendix, No. 6.

Lectures delivered by Professors.

## APPENDIX, No. 6.

### RETURN of the NUMBER of LECTURES delivered by each Professor in the Queen's College, Belfast, in each YEAR.

| — | 1849-50. | '50-51. | '51-52. | '52-53. | '53-54. | '54-55. | '55-56. | '56-57. | '57-58. | '58-59. | '59-60. | '60-61. | '61-62. | '62-63. | '63-64. | '64-65. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Professor of— | | | | | | | | | | | | | | | | | |
| Greek, . . . | 135 | 232 | 244 | 246 | 236 | 240 | 234 | 235 | 236 | 350 | 500* | 460* | 440* | 360* | 360 | 360 | In addition, examining numerous exercises. |
| Latin, . . . | 162 | 197 | 216 | 221 | 189 | 196 | 232 | 230 | 230 | 275 | 398 | 234 | 234 | 234 | 230 | 324 | Do. do. |
| History and English Literature, . . | 35 | 55 | 98 | 91 | 104 | 100 | 105 | 105 | 99 | 110 | 123 | 92 | 154 | 146 | 140 | 167 | Besides correcting about 700 exercises. |
| Modern Languages, . | 208 | 330 | 324 | 307 | 306 | 305 | 319 | 340 | 369 | 307 | 340 | 372 | 372 | 360 | 356 | 356 | |
| Celtic, . . . | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | – | – | – | – | Open to the Public without charge. |
| Mathematics, . . | 135 | 256 | 333 | 248 | 246 | 330 | 346 | 322 | 330 | 400 | 400 | 370 | 370 | 316 | 325 | 330 | Besides three hours each week on which the Senior Scholar meets the Junior Division. |
| Natural Philosophy, . | 122 | 257 | 233 | 209 | 256 | 250 | 255 | 307 | 300 | 300 | 242 | 242 | 213 | 182 | 160 | 160 | In addition, arranging apparatus, which occupies as much time as the lectures. |
| Chemistry, . . . | 134 | 136 | 137 | 129 | 132 | 130 | 138 | 142 | 142 | 140 | 132 | 132 | 132 | 132 | 130 | 130 | In addition, superintending the working pupils, of whom from eight to twelve are admitted each year by examination to the laboratory without charge. |
| Practical Chemistry, . | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 34 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | |
| Natural History, . . | 120 | 120 | 133 | 137 | 139 | 138 | 142 | 140 | 143 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | Including lectures in Physical Geography, delivered free to all students. |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mineralogy and Geology, | *Public.* | 86 | 54 | 59 | 54 | 55 | 49 | 59 | 52 | 52 | 52 | 52 | 52 | 52 | [redacted] | 52 | In addition, daily attendance as Curator in the Museum. |
| Logic and Metaphysics, | – | – | 78 | 142 | 176 | 175 | 164 | 177 | 179 | 167 | 140 | 158 | 194 | 208 | 195 | 195 | In addition, criticising above 600 essays in each session. |
| Civil Engineering, . | 134 | 138 | 140 | 136 | 140 | 136 | 147 | 118 | 100 | 194 | 196 | 220 | 198 | 328 | 319 | 236 | Including practical work under the direction of the Professor. |
| Agriculture, . . | 172 | 206 | 205 | 212 | 209 | 213 | 218 | 186 | 190 | 166 | 166 | 156 | 156 | [redacted] | 50 | 50 | Including lectures on Medical Jurisprudence, for which there is no salary. |
| Anatomy & Physiology, | 115 | 116 | 115 | 115 | 114 | 115 | 117 | 113 | 115 | 115 | 115 | 112 | 108 | 108 | 224 | 261 | In addition, daily practical teaching in the dissecting-room for three hours by the Professor, and four hours by his assistant. |
| Practice of Medicine, . | 93 | 93 | 92 | 92 | 93 | 94 | 94 | 85 | 75 | 93 | 95 | 93 | 95 | 95 | 95 | 95 | |
| Practice of Surgery, . | 93 | 94 | 93 | 91 | 91 | 92 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 93 | 93 | 93 | Besides about twenty-five lectures each session on Operative Surgery. |
| Materia Medica, . . | 92 | 91 | 91 | 93 | 90 | 90 | 92 | 80 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | |
| Midwifery, . . . | 92 | 92 | 92 | 91 | 90 | 93 | 93 | 93 | 93 | 95 | 90 | 80 | 80 | 76 | 76 | 76 | Besides practical instruction to students which may be required at any hour throughout the year. |
| English Law, . . | 24 | 48 | 72 | 96 | 96 | 96 | [redacted] | 96 | 96 | 96 | 72 | 72 | 96 | 96 | 96 | 96 | No third year Class in 1859–60, or fourth year Class in 1860–61. |
| Jurisprudence and Political Economy, . | 24 | 48 | 96 | 120 | 120 | 120 | 120 | 120 | 120 | [redacted] | 120 | 120 | 120 | 120 | 120 | 120 | |

The above Return gives the number of Meetings of one hour each, in each Class. The system of instruction includes, not merely formal Lectures, but also examination in the business of the course; in some classes these examinations are held daily; in others on fixed days of the week, according to the nature of the subject.

The Professors also conduct the General Scholarship Examinations, and some of them, in addition, the Matriculation and Supplemental Examinations.

* Including about 110 on Sanskrit and Hindustani.

## OCTOBER EXAMINATIONS of Queen's College, Belfast, 1865.

| Days. | Hours. | First Year Students. | Second Year Students. | Third Year Students. | Fourth Year Students. |
|---|---|---|---|---|---|
| Tuesday, Oct. 16. | 9—12 | | Suppl. Ex. { English.<br>Mod. Lang.<br>Math. | Suppl. Ex.—Mod. Lang., Math., Nat. Phil. | Senior Schol.—Latin. |
| | 2—5 | | Suppl. Ex.—Greek, Latin. | Suppl. Ex.—Greek, Latin, Logic. | Senior Schol.—Latin. |
| Wednesday, Oct. 17. | 9—12 | | Liter. Schol.—Greek. | | Senior Schol.—Greek. |
| | 2—5 | | Liter. Schol.—Greek. | | Senior Schol.—Greek. |
| Thursday, Oct. 18. | 9—12 | | Med.<br>Engin. } Schol.—Chem. | Previous Examination, in Arts and Engineering, of Queen's University. | Senior Schol.—Chem. |
| | 2—5 | Matric.—Math. | Med.<br>Engin. } Schol.—Chem. | | Senior Schol.—Chem. |
| Friday, Oct. 19. | 9—12 | Matric.—Greek, Latin. | | | |
| | 2—5 | | | | |
| Saturday, Oct. 20. | 9—12 | Matric.—English, *in Arts only.* | | | Senior Schol.—Mod. Hist. |
| | 2—5 | Matric.—English, *in Medicine, &c.* | | | Senior Schol.—Mod. Hist. |

| | | | | | |
|---|---|---|---|---|---|
| Monday, Oct. 22. | 9—12 | | Med. Schol.—Botany | Engin. Schol. { Geol. and Phys. Geog. | Senior Schol.—Nat. Hist. |
| | 2—5 | Lists of Matriculated Students to be made out. | Med. Schol.—Zoology.<br>Liter. Schol.—English. | | Senior Schol.—Nat. Hist. |
| Tuesday, Oct. 23. | 9—12 | Science, Med., Engin. } Schol.—Math. | Science, Engin. } Schol.—Math. | Engin. Schol.—Math. | Senior Schol.—Math. |
| | 2—5 | Science, Med., Engin. } Schol.—Math. | Science, Engin. } Schol.—Math.<br>Med. Schol.—Anat. and Phys. | Engin. Schol.—Math.<br>Med. Schol.—Anat. and Phys. | Senior Schol.—Math.<br>Med. Schol.—Prac. of Midw. |
| Wednesday, Oct. 24. | 9—12 | | | Med. Schol.—Prac. Chem. | Senior Schol.—Nat. Phil.<br>Med. Schol.—Prac. of Med. |
| | 2—5 | Liter., Med. } Schol.—English. | Engin. Schol.—Exp. Phys. | Engin. Schol.—Nat. Phil. | Senior Schol.—Nat. Phil. |
| Thursday, Oct. 25. | 9—12 | Liter., Med. } Schol.—Latin. | Liter. Schol.—Latin.<br>Engin. Schol.—Geo. Draw. | Engin. Schol.—C. Engin.<br>Med. Schol.—Mat. Med. | Med. Schol.—Med. Jur.<br>Senior Schol.—Pol. Econ. |
| | 2—5 | Liter., Med. } Schol.—Latin. | Liter. Schol.—Latin.<br>Engin. Schol.—Geo. Draw. | Engin. Schol.—C. Engin. | Senior Schol.—Pol. Econ.<br>Med. Schol.—Surg. Anat. |
| Friday, Oct. 26. | 9—12 | Liter., Med. } Schol.—Greek. | Liter. Schol.—Mod. Lang. | | Senior Schol.—Mod. Lang.<br>Senior Schol.—Metaph.<br>Med. Schol.—Anatomy. |
| | 2—5 | Liter., Med. } Schol.—Greek. | Liter.[*] Schol.—Mod. Lang. | | Senior Schol.—Mod. Lang.<br>Senior Schol.—Metaph.<br>Med. Schol.—Physiology. |

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[*] Students passing the Supplementary Examinations complete the previous year, and take rank accordingly.

## HOURS OF LECTURES,—SESSION 1865-66

| Hours | Arts. | | | Civil Engineering. | | | Medicine. |
|---|---|---|---|---|---|---|---|
| | 1st Year. | 2nd Year. | 3rd Year. | 1st Year. | 2nd Year. | 3rd Year. | |
| 9 till 10 | *French.*<br>Monday<br>Wednesday<br>Thursday<br>*German.*<br>Tuesday<br>Friday | *Mathematics.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | | *French.*<br>Monday<br>Wednesday<br>Thursday<br>*German.*<br>Tuesday<br>Friday | *Mathematics.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | | |
| 10 till 11 | *Mathematics.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | *French.*<br>Monday<br>Wednesday<br>Thursday<br>*German.*<br>Tuesday<br>Friday | *Honor Classes.* | *Mathematics.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | | | |
| 11 till 12 | *Latin.*<br>Monday<br>Wednesday<br>Friday | *Nat. Philos. Exp. Phys.*<br>Monday<br>Wednesday<br>Friday<br>*Mat. Phys.*<br>Tuesday<br>Thursday | *Eng. Lit.*<br>Monday<br>Wednesday<br>Friday | *Exp. Phys.*<br>Monday<br>Wednesday<br>Friday<br>*Geom. Drawing.*<br>Tuesday<br>Thursday | *Mineralogy and Geology.*<br>Monday<br>Wednesday<br>Friday<br>*Mat. Phys.*<br>Tuesday<br>Thursday | *Office and Field Work.*<br>Tuesday<br>Thursday | *Exp. Phys. 3 months.*<br>Monday<br>Wednesday<br>Friday<br>*Prac. Chem.* [*see below.* Summer Medical Classes.] |
| 12 till 1 | *Greek.*<br>Monday<br>Thursday<br>Friday | *Latin.*<br>Monday<br>Wednesday<br>Friday | *Metaphysics.*<br>Tuesday<br>Wednesday<br>Thursday<br>Friday<br>*History.*<br>Monday<br>Wednesday<br>Friday | *Geom. Drawing, and Office Work.*<br>Tuesday<br>Thursday | *Office and Field Work.*<br>Tuesday<br>Thursday | *Office and Field Work.*<br>Tuesday<br>Thursday | *Anatomical Demonstrations.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 till 2 | | *Greek.*<br>Monday<br>Thursday<br>Friday | *Zool to Mar. 1.*<br>Monday<br>Tuesday<br>Wednesday<br>Friday<br>*Bot. from May 1.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | | *Civil Eng.*<br>Monday<br>Wednesday | *Nat. Philos. applied.*<br>Tuesday<br>Thursday | *Zool. to Mar 1.*<br>Monday<br>Tuesday<br>Wednesday<br>Friday | *Bot. from May 1.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | *Surgery.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday | *Med. Juris.*<br>Friday |
| 2 till 3 | *English.*<br>Monday<br>Tuesday<br>Wednesday<br>Friday | *Logic.*<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | *Pol. Economy.*<br>Tuesday<br>Thursday<br>Friday | | | *Civil and Mech Eng.*<br>Monday<br>Wednesday | | | *Anatomy.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | Examination on Fridays at 4 o'clock. |
| 3 till 4 | | | *Chemistry.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | *Chemistry.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | Field Work and Engineering Excursions and additional Lectures for 2nd and 3rd Year Students occasionally on Fridays and Saturdays for some hours. | | | *Chemistry.*<br>Mon.<br>Tues.<br>Wed.<br>Thur.<br>Fri.<br>*after May 1, from 2 till 3.* | *Midwifery.*<br>Monday<br>Tuesday<br>Thursday | *Medical Jurisprud.*<br>Wednesday |
| 4 till 5 | | | Chemical Laboratory open from 9, A.M., till 3, P.M. | | | | | *French.*<br>Monday<br>Thursday<br>or from 9-10, A.M. | *Materia Med.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday | *Prac. Med.*<br>Monday<br>Tuesday<br>Wednesday<br>Thursday |

## SUMMER MEDICAL CLASSES, COMMENCING MAY 1, 1866.

| | |
|---|---|
| *Practical Chemistry,* . . . . . . | Monday, Tuesday, Wednesday, Thursday, Friday, from 11 A.M. till 1 P.M. |
| *Botany,* . . . . . . . . . . . . | Monday, Tuesday, Wednesday, Thursday, Friday, from 1 till 2 P.M. |

## FACULTY OF LAW.—HOURS OF LECTURES.

| 1st Year. | | | | 2nd Year. | | | | 3rd Year. | | 4th Year. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 o'clock, P.M. | *Law of Property.*<br>Monday<br>Wednesday<br>Friday | 7 o'clock, P.M. | *Jurisprudence.*<br>Monday<br>Wednesday<br>Friday | 7 o'clock, P.M. | *Equity and Bankruptcy.*<br>Monday<br>Wednesday<br>Friday | 8 o'clock, P.M. | *Civil Law.*<br>Monday<br>Wednesday<br>Friday | 11 o'clock, A.M. | *Common and Criminal Law.*<br>Tuesday<br>Thursday<br>Saturday | 10 o'clock, A.M. | *Evidence and Pleading.*<br>Tuesday<br>Thursday<br>Saturday | 6 o'clock, P.M. | *Constitutional & Colonial Law.*<br>Monday<br>Wednesday<br>Friday | 12-30 o'clock, P.M. | *Medical Jurisprudence.*<br>Wednesday, 3 o'clock<br>Friday, 1 o'clock |

*Appendix, No. 7.*

Digest of Subjects and Courses.

## APPENDIX, No. 7.

## An Enlarged Digest of Subjects and Courses pursued in Queen's College, Belfast.

### Greek—*Professor, Charles MacDouall*, LL.D., M.R.A.S.

In the Greek Class, as in all those which are attended during more than one session, the business, as well as the hours assigned to the Students of the different years, is necessarily different; but it is always distributed into three simultaneous processes, viz., public examinations, lectures more or less formal, and exercises written at home and commented on in the class.

In the first session, the complex and self-contained structure of the Greek language is subjected to a close analysis; carried out, on the one hand, by tracing words to their crude forms, by classifying terminations, both the primary and the flexional, and by discriminating among analogically correct forms those actually used in different ages and dialects; on the other hand, by exhibiting the methods by which words are combined in simple clauses, clauses are knit into sentences, and sentences compose periods less or more complicated. Some prose-work furnishes the materials for this analysis; while the Students read and translate it, or else re-translate off-hand passages read out in English before them by the Professor. Besides syntactical phænomena, the laws and characteristics of both epic and dramatic versification are expounded and exemplified, while a portion of the *Ilias* and some tragedy are used as text-books.

In the second session, while consecutive passages of Herodotus along with some Attic oration or philosophical treatise, and a portion of the *Odysseia* along with some Attic tragedy or comedy, form the basis of prelections, the previous discipline is continued and extended; the distinctions of dialect and style are more fully elucidated; the origin, growth, and fortunes of the epos, the drama, history, and other departments of literature, are more distinctly unfolded; discussions on points of mythology, geography, chronology, archæology, æsthetics, &c., are more freely introduced and more amply treated. The Students are required to turn Herodotean Greek, at sight, into Attic, altering both the forms of words and the structure of sentences; to re-translate passages into Greek prose and verse; and also to give in original essays in both forms of composition.

Considering the variety of subjects which enter simultaneously into the first and second Sessions of the Collegiate Course, the Students generally appear to give a fair share of their attention to the Greek Language and Literature. Several times in the week a considerable number voluntarily attend extra Lectures, at which no note is taken of their presence or of their absence.

In a distinct or higher class, advanced Students, generally in the third or fourth year of their Course, are exercised in the study of more difficult works than those previously read, in the higher problems of criticism and philology, and especially in composing both prose and verse.

The following text-books have been used in the successive Sessions of College from 1849–50 to 1865–66:—*Ilias*, Books III., VI., X., and from XI. to XXIV. (inclusive); *Odysseia*, Books I., II., III., IV., V., XI., XII., XIII., XIV.; Hesiodus, *Theogonia;* Pindarus, *Olympia*, *Pythia*, *Nemea;* Aeschylus, all the Tragedies except the *Supplices;* Sophocles, the seven Tragedies; Euripides, *Alcestis*, *Hippolytus*, *Hecabe*, *Phoenissae*, *Orestes*, *Helene*, *Hercules Furens*, *Bacchae*, *Ion*, *Andromache*, *Iphigeneia in Aulide*, *Iphigeneia in Tauris;* Aristophanes, *Nubes*, *Aves*, *Ranae;* Herodotus, Books I., II., IV., VII.; Thucydides, Books I., II.; Xenophon, Portions of *Anabasis* and *Cyropaedeia;* Platon, *Apologia Socratis*, *Gorgias*, *Phaedon*, *Phaedrus*, *Philebus*, *Protagoras*, *Timaeus*, *Theaetetus*, and Book VII. of *Respublica;* Aristoteles, *Poetica* and portions of *Rhetorica;* Demosthenes, *c. Meidiam* and *de Corona;* Aeschines, *in Ctesiphontem.*

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### Sanskrit and Hindustani.

The Classes for these Languages (conducted by the Professor of Greek) are at present attended chiefly by Students who either have already obtained or are preparing to compete for Appointments in the Indian Service; but the Sanskrit

Digest of Subjects and Courses.

Class begins to attract others also, as the importance of some practical acquaintance with Sanskrit, especially in relation to Classical Studies and to Comparative Philology, is now generally recognised.

Either Class may be attended separately; or a two years' Course may be taken, in which Sanskrit alone is studied during the first year, while Sanskrit and Hindustani (including the elements of Persic) occupy the second.

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## LATIN—*Professor, William Nesbitt,* M.A.

The Professor of Latin lectures Students of the First and Second Years each set three hours a week; attendance on the lectures being compulsory for those who take the Classes of Latin. Besides these compulsory lectures, he gives two lectures additional to Students of each of these years, attendance on which is voluntary, in which more difficult authors are read, and special attention is paid to composition. The attendance on these lectures is very good.

An honor Class has been formed of Students of the Third and Fourth Years, chiefly attended by those who are anxious to distinguish themselves in Ancient Classics at the Degree Examination.

In addition to the above, two lectures are delivered weekly on Latin composition.

The number of hours during which the Professor lectures each week is fourteen.

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## HISTORY AND ENGLISH LITERATURE—*Professor, George Lillie Craik,* LL.D.

### *Class of the English Language.*

The business of this Class is conducted by—

A Course of Lectures on the Origin, Growth, and Revolutions of the Language from the earliest times to the present day;
A Course of less formal Expositions of the constitution of the Language, delivered partly at a succession of voluntary meetings in the Second Term (which have usually been attended by a large proportion of the Class);
Daily Examinations on the text-book—Craik's "Outlines of the History of the English Language;"
Critical Readings of "Specimens" at the end of the text-book;
Weekly Essays in English composition.

### *Class of English Literature.*

The business of this Class is conducted by—

A Course of Lectures on Literature, regarded as one of the Forms or Departments of the Artistic;
Occasional Lectures on portions of the History of English Literature;
Examinations on the text-book—Craik's "Manual of English Literature;"
Written Essays every fortnight throughout the Second Term;
Critical Reading of Shakespeare's Julius Cæsar, with exposition of the artistic conduct and characteristics of the play; followed by such further critical readings as the time will allow.
In the last Session (1864–65) a Course of Expositions on the Fifth edition of Latham's English Language.

### *Class of History.*

The business of this class is conducted by—

A Course of Lectures on the Science of History, embracing the nature, definition, attractions, and recommendations of the study, the subject of historic evidence, the various theories of historic prognostication, the method of studying history, &c.;
A few Lectures on the historical development of the English Constitution;
A rapid exposition of the outlines of Historic Geography;

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*Appendix, No. 7.*

Digest of Subjects and Courses.

A more extended exposition of the principles of Chronological Science;

A survey of the history of modern Europe, and of the formation and growth of its principal States from the overthrow of the Western Roman Empire.

The Professor also superintends the historic studies of the Senior Scholar in History and Modern Languages.

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### MODERN LANGUAGES—*Professor, Albert Ludwig Meissner*, PH.D.

The instruction in Modern Continental Languages embraces three courses each for French and German, extending over three terms, and a course of Italian during the first term, attendance on which is voluntary.

No entrance examination is as yet held in Modern Languages, in consequence of which the insufficiency of intermediate teaching is more apparent in this department than perhaps in any other.

Students in Arts and Medicine, and in the department of Engineering, are required to attend lectures on one Modern Language for one session. The majority select for this purpose the French language; several, however, attend both French and German. For Students in Arts of the second and higher years, Modern Languages form one in a group of four subjects, out of which they select two.

The work of the classes, especially during the first two years, is carried on to a great extent by means of *vivâ voce* questions and answers. Frequent oral examinations are held, and at each meeting of the classes a passage is translated from English into French or German.

In the First Session the Grammar is explained, and select passages are translated from French and German Classics.

In the Second Session a more extended course of the Grammar is gone through, and the Students are made acquainted with the principal authors of French and German Literature.

The first term of the Third Session is devoted to a repetition of the two preceding courses, together with Examinations on the History of French and German Literature. The Text-books are Géruzey and Demogeot for French, and Weber and Vilmar for German. The questions and answers are given and returned in French and German respectively.

In the second term of the Third Session the Professor delivers Lectures in French and German on those periods of Literature with which the Students have already become somewhat familiarized by their previous studies.

In the third term of the Third Session the work of the second is continued, and occasional Lectures are delivered on the principles of Comparative Grammar.

Medical Students unable to attend the classes in Arts, are instructed in a separate class.

About six per cent. of the Students attending Lectures on Modern Languages are Non-Matriculated.

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### MATHEMATICS—*Professor, John Purser*, M.A.

Attendance on this Class is prescribed to all Students in the Faculty of Arts during the first year of their Course; during the second year Mathematics forms one of four Courses, out of which the Students select two.

All Students in the Department of Engineering are required to attend the Mathematical Classes during two years.

Before entering, Students are required to pass an examination in the First and Second Books of Euclid, and in a small portion of Algebra. Practically they come fairly prepared in the prescribed portions of Euclid, but a large proportion can hardly be said to possess even an elementary knowledge of Algebra. A considerable number of the Students are Candidates for Mathematical Scholar-

*Appendix, No. 7.*

Digest of Subjects and Courses.

ships at entrance, and these are generally well prepared in the first six Books of Euclid, and a considerable portion of Algebra and Plane Trigonometry.

On this account the instruction of the First Year in Mathematics has been given in two Divisions. The Lower Division has been carefully taken through such portions of Euclid I., II., III., IV., VI., as they had not previously prepared, and has received instructions in Algebra as far as the progressions, and in Plane Trigonometry as far as the solution of triangles, with the use of logarithms and trigonometrical tables. The instruction of the Upper Division comprises a complete Course of Algebra and Trigonometry, with the principal historical properties of the Conic Sections, treated geometrically.

The Council has sanctioned the employment of the Senior Mathematical Scholar in giving a portion of the instruction of the Lower Division. This arrangement, while it affords a greater number of hours to the Lower Division, enables the Professor of Mathematics to give more attention to the Upper Division, and has been found to work very satisfactorily.

In the Second Year the subjects of Lecture are Analytical Geometry, the Differential and Integral Calculus, and the first three sections of the Principia of Newton; and, in addition to this, when the progress of the Students has been sufficiently rapid during the early part of the Session, The Theory of Equations, and the solution of the simpler kinds of Differential Equations.

For several years past a third and higher class has been formed for the benefit of the Students competing for University honors and the Indian Civil Service Examinations. The subjects of lecture are Geometry of three dimensions, Differential Equations, and other branches of the higher Mathematics, according to the advance which the Students have made.

## The Physical Classes—*Professor, John Stevelly*, LL.D.

The subjects taught in the Physical Classes are distributed under three subdivisions: Mathematical Physics, Experimental Physics, and Natural Philosophy applied.

The subjects comprised in the Course of Mathematical Physics are—Mechanics (under its several statical and dynamical subdivisions), Hydrostatics, Hydraulics, Pneumatics, Acoustics, Optics, and Astronomy. The Students who attend this class are the Matriculated Students who are seeking a Degree in Arts, the Engineering Students of the Second Year, and Non-Matriculated Students, some of whom are Candidates for the ministry in the Presbyterian Churches. Attendance at the Lectures three days in each week is imperative on all those Students, and one hour in each week is occasionally employed in asking questions from prescribed parts of Galbraith and Haughton's Manual. Two days in the week attendance is optional, when Analytical Mechanics and the higher branches of Physics are taught. In the Lectures, attendance on which is imperative, such mathematical proofs and illustrations only are introduced as a person reasonably prepared in the six first Books of Euclid and Elementary Algebra might easily comprehend. The teaching is by prelection; and although no text-books are prescribed, the ordinary elementary works on the several subjects are pointed out and referred to. At the Lectures, attendance on which is voluntary, the demonstrations and investigations are pursued in a more systematic and mathematical method, so as to require a knowledge of Analytic Geometry, Conic Sections, and the Differential and Integral Calculus. Text-books are used for the guidance of the Students attending these Lectures, who are chiefly those who are intending to compete for Honors. These text-books are Earnshaw's and Todhunter's Statics, Wilson's Dynamics, Tait's Dynamics of a Particle, Miller's Hydrostatics, Lloyd's Optics and Lectures on the Wave Theory of Light, Herschell's Astronomy, and two of Airy's Tracts, with occasional reference to Du Hamel's Cours de Mecanique, and to Poisson's Works.

The Class of Experimental Physics is attended by the same Students, and also by Agricultural Students of the Second Year, and by Medical Students of the Third Year. The subjects of these Lectures are taught entirely without mathematical demonstration, by the aid of experiments, illustrations, drawings, *Appendix, No. 7.* — Digest of Subjects and Courses.

and models, and such works as Lardner's Hand-book, Golding Bird's Physics, Webster's Physics, Miller's Chemistry, Vol. I., Arnott's Elements, Biot, Ganot, Pouillet, Peschel, and such like standard works are referred to, and recommended to the attention of the Students. The subjects of Heat, Electricity, and Electro-Magnetism are at present chiefly taught in the Chemical Class; but the leading facts and principles are taught by selections from Biot, Pouillet, Ganot, and Miller.

The Class of Natural Philosophy applied is intended for Students in Engineering of the Third Year, by the recent University Ordinance; lectures and instructions twice in the week. The subjects embraced are the nature and estimate of work done; the kinds of work required to be done; the nature and laws of friction, and other useless resistances; the moving powers at our command, their respective nature and the laws which govern their action; the manner in which they are, by machinery, connected with and opposed to the resistances; the construction of machines; the principles of strength of materials as opposed to strains; the equilibrium of structures, frames, roofs, arches, domes; the general principles of mechanism; general maxims in the structure and working of machines; maximum effects of machines; hydraulic engines; the steam-engine. The works used as guides to the studies of the Students in this Class are selections from Lloyd's and Robinson's Mechanics, Willis's Principles of Mechanism, Barlow on Materials and Construction. Hodgkinson's Experimental Researches, Tredgold, Tate's Elementary Treatises and Exercises, and selected numbers of Weale's Rudimentary Series.

### CHEMISTRY—*Professor, Thomas Andrews,* M.D., F.R.S., M.R.I.A.

In the Class of Chemistry the greater part of the Course is devoted to pure Chemistry; but the Elements of the Sciences of Heat and Electricity, particularly in their relations with Chemistry Proper, are also taught. The application of these sciences to the arts are particularly referred to; and it has been the constant endeavour of the Professor to communicate to the Students as precise and accurate information as possible on the subjects treated in his Lectures, and to train them to habits of careful observation and accurate thinking. With this view a weekly examination of the whole Class is held, at which the Students are subjected to a searching examination on the business of the preceding week; and further to encourage a taste for scientific inquiry, and also to train a certain number of practical chemists, a limited number of the Students are admitted, by examination, as working pupils into the chemical laboratory, where they have an opportunity of acquiring a knowledge of chemical analysis. This latter arrangement has now been in practice for several years, and has been attended with the best results.

### NATURAL HISTORY—*Professor, Wyville Thomson,* LL.D.

The Zoological Department of the Course occupies the First Term and greater part of the Second, and comprehends the Outlines of Anatomy and Physiology of animals, followed by Systematic Zoology, and remarks on the distribution of animals.

The Botanical part comprehends Vegetable Anatomy and Physiology, Systematic Botany, and distribution of vegetable forms. In addition to the Class Lectures, meetings are held in the Botanic Garden, and practical excursions made into the neighbouring country.

This Course comprehends chiefly Lectures on the structure and form of continents and islands; the distribution of mountain systems, rivers, and lakes; the ocean, its currents, temperature, &c.; the atmosphere, its currents, &c.; rain, snow, &c. The preceding subjects are considered in relation to the geographical distribution of animals and plants.

These different branches are illustrated by specimens, or drawings, or both, as the case may be.

## GEOLOGY AND MINERALOGY—*Professor, Wyville Thomson*, LL.D.

The Courses consist of lectures, demonstrations, and examinations. The Geological Course embraces the general principles of the science, and a detailed investigation of the palæontological, lithological, and economic characters of all the formations. The Students are exercised in the practical use of the necessary instruments, and in the construction of Geological maps and working sections. The characteristic fossils of the different formations are rendered familiar by the exhibition of specimens and models, and an excellent series of drawings. Drawings are also used for the illustration of the underground workings of mines of copper, coal, &c.

In the Mineralogical Course the Students are instructed in the most modern crystallography by models, and exercised with the reflecting goniometer. The electro-chemical classification of minerals is then explained, and an extensive suite of minerals in the Museum is arranged on that system, for the instruction of the Students.

Once a week examinations are held, and additional explanations given of the subjects of the preceding lectures.

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## LOGIC AND METAPHYSICS—*Professor, Rev. James M'Cosh*, LL.D.

### LOGIC.

Students attend this Class four days each week during twelve weeks of the Second Session. On two of these days there are examinations on a text-book of Formal Logic, with short prelections on the said text-book, and also the oral explanation of philosophic terms, the reading of Essays by the Students, and the criticism of them by the Professor. On the other two days the Professor delivers written Lectures. This Course of Lectures is divided into two parts: FIRST, GENERAL LOGIC, or an Exposition of the Laws of Discursive Thought in general, that is, whatever be the object of thought, embracing Notions, Judgment, and Reasoning; SECONDLY, PARTICULAR LOGIC, or the Development of the Laws of Thought, as directed to particular classes of objects, comprising Demonstrative Evidence, Probable Evidence, Induction, Analogy, Teleology, and the Relation of the Organon of Bacon to that of Aristotle. The prominent topic in the second part is the Method of Induction, which is treated under the heads:—I. The Means, being generally Systematic Observation, and more particularly Analysis, Observation Proper, Experiment, Hypothesis, Explication of the Conception. II. The End, being the Discovery of Classes (as in Natural History, &c.), of Composition (as in Chemistry, &c.), or Causes (as in Natural Philosophy, &c.). III. The Canons of Classes, Composition, and Causes by which we may reach the End by the Means. The Students are required to give in a short written essay once a fortnight. At the Pass Examination, at the close, about one-half of the questions bear upon subjects discussed in the text-book, and the other half upon topics explained in the lectures.

### METAPHYSICS.

This Class meets four days each week, and an hour each day, during the first two terms of the Session, and is attended by Students of the Third Year. On one of these days there is a rigid examination, with interspersed remarks by the Professor, on the second half of the Epitome of the History of Philosophy, sanctioned by the University of France (translated by Henry). In this part of the text-book there is an abstract of the doctrines of the more eminent philosophers who have flourished in this country, and on the Continent of Europe, from the time of Bacon to the present day. On another of these days there is an examination on the written lectures, together with the reading and criticism of essays; the Students being required to give in a carefully written essay every fortnight to the Professor, who reads it at home, and selects certain portions of it to be read in the class, where he criticises it. These essays are on the leading subjects discussed in the written lectures. On the other two days the Professor delivers carefully prepared written lectures. He begins the course with a few lectures on the Method of Investigation, which is that of Induction, and on Mind and Body,

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and then proceeds to divide his course into two parts, PSYCHOLOGY and METAPHYSICS PROPER.

Under PSYCHOLOGY he treats of the Powers or Faculties of the Mind which he classifies as follows:—I. The Simple Cognitive Faculties: (*a*) Perception; (*b*) Consciousness. II. The Reproductive Faculties: (*a*) Retention; (*b*) Phantasy; (*c*) Association; (*d*) Recognition; (*e*) Composition; (*f*) Symbolic Power. III. The Faculties which Discover Relations: (*a*) of Identity and Difference; (*b*) of Whole and Parts (to which we owe abstractions); (*c*) of Space; (*d*) of Time; (*e*) of Quantity; (*f*) of Resemblance (to which we owe the Discovery of Classes); (*g*) of Active Property; and (*h*) of Cause and Effect. IV. The Conscience. V. The Emotions; and VI. The Will. In this course of lectures, which occupies two-thirds of the session, the method of operation and peculiarities of these mental attributes are carefully pointed out.

Under METAPHYSICS PROPER the Professor treats of the Native or Intuitive Principles of the Mind. He points out their true Psychological Nature, and shows that they are the fundamental laws or rules of the Faculties. He also specifies the tests, such as Self-evidence, Necessity, and Universality, by which they may be distinguished. He proves that they are in the constitution of the mind, and that they operate spontaneously, but that we can make a reflective or philosophic use of them only after we have detected their nature by a careful induction. He classifies them as the True and the Morally Good. Under the first he treats (1) of Primitive Cognitions and Beliefs, such as Body, Spirit, Substance, Power, Space, Time, the Infinite; and (2) Primitive Judgment, such as Substance and Quality, Mathematical Axioms, Cause and Effect. Under the Good, without entering into the subject of Ethics, he shows that there is a fundamental distinction between Moral Good and Evil. He closes this course by showing how all these principles should conduct us to the belief in a Being who is at one and the same time the True and the Good.

### HONOR LOGIC.

The Professor has also an Honor Class, in which are discussed the higher questions of Logic (Formal and Inductive) and Philosophy. It meets three times a week, and is attended by fourteen Students. At two of the hours the Professor lectures on Logic and the History of Philosophy, and at the third hour there are examinations on text-books (including logical treatises by Mansel, Thomson, and Mill), and discussions.

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### CIVIL ENGINEERING—*Professor, James Thomson*, M.A., C.E.

The Courses of lectures and practical instruction given by the Professor of Civil Engineering are arranged to accord with the Ordinances of the Queen's University, which prescribe to candidates for the Diploma in Civil Engineering a Curriculum extending over three Sessions usually, but admitting of abbreviation to two Sessions in the case of students whose previous acquaintance with a sufficient group of the subjects prescribed for study in the first and second Sessions of the ordinary Course shall be deemed by the College Council satisfactory.

For the First Year Students the Professor gives a course of instruction, comprising lectures and oral examinations on the Principles of Geometrical Drawing, and the performance by the students of practical work under his direction. The lectures include the principles of descriptive geometry, orthographic and isometric projection, and linear perspective; and the practical work comprises the performance of examples in these subjects, and the execution of drawings in Mechanical Engineering, and occasionally also in Architecture and Civil Engineering. The Class meets for two hours at a time on two days per week during the three Terms of the College Session.

For the Second Year Students two courses are conducted by the Professor of Engineering, of which one is a Lecture Course and the other a Practice Course. The Lecture Course comprises surveying, levelling, and plotting, with the theory and use of the instruments required in surveying and levelling operations; mensuration of earthworks for railways; setting out works on the ground, including ranging of railway curves, and setting out breadths of cuttings and embankments, and ranging tunnels, &c. The Course also comprises usually some of the following subjects:—revision and farther prosecution of descriptive geometry, and perspective, and other subjects of geometrical drawing; designing and drawing of oblique bridges; properties and qualities of materials used in construction, and modes of procuring them; and an introduction to architecture as a fine art.

In the Practice Course of the Second Year the Students are engaged in the performance of office and field work, under the instruction and direction of the Professor; and the business includes surveying, levelling, drawing, mapping, and the computation of areas of lands, and other engineering calculations. Excursions are also made occasionally during the Session to visit Engineering works.

For the Third Year Students there are (as for those of the Second Year), two Courses conducted by the Professor, one a Lecture Course, and the other a Practice Course. The Lecture Course comprises the farther treatment of some of the subjects proposed to be entered on in the Second Year, and most of the following subjects:—foundations, cofferdams, bridges, tunnels, roads, and railways; specifications for engineering contracts; water-works for supplying towns; science of the flow of water in orifices, pipes, and canals; drainage of fens by gravitation, and by steam power and other mechanical means; harbours; regulation and improvement of rivers; science of the strength of materials and structures; ventilation of dwelling-houses, public buildings, and mines; the iron manufacture; processes and mechanisms used in foundries and engineering workshops.

The Practice Course includes office work, field work, and engineering excursions.

## ANATOMY AND PHYSIOLOGY—*Professor, Peter Redfern,* M.D., Lond., F.R.C.S.

The Department of Anatomy and Physiology comprises two distinct Courses of Lectures—one on Anatomy and Physiology, the other on Descriptive and Surgical Anatomy, and also the teaching of Anatomy by Dissections throughout the day.

The Course of Anatomy and Physiology includes about 144 meetings, each of an hour's duration, held on the first five days of each week from November to April inclusive. These meetings are for lecture and occasional examinations on the subjects previously considered in the lectures. The lectures include a complete course of the Anatomy and Physiology of the general textures of the body, including the blood, chyle, &c., and a systematic account of the whole of the viscera, treated of as they are associated in groups for the several purposes of digestion, circulation, respiration, urination, innervation, and generation; also the organs of sense. In treating of every part or organ its healthy state is shown by recent dissections and by preparations from the Museum illustrating it in man and animals, its diseased states and actions being referred to at the same time and contrasted with the healthy ones. The textures not visible to the naked eye are shown under a series of achromatic microscopes, so that during the Course every student in the class has an opportunity of judging for himself of the true characters of each part, and, by becoming familiarized with these, of recognising each when changed by disease.

The Course of Practical Anatomy and Anatomical Demonstrations includes:—

1st. Dissections carried on throughout the day under the immediate superintendence of the Professor of Anatomy and Physiology, and the Demonstrator. Each Student is required to be steadily engaged in dissections during the whole Session. For this purpose the supply of subjects is regular and abundant, and thus affords the surest foundation for efficient medical teaching.

2nd. This Course includes the Anatomical Demonstrations, which consist of a complete Course of Descriptive and Surgical Anatomy, commencing with the anatomy of the skeleton and bones, and including the anatomy of the limbs and other parts, excluding that of the viscera and the physiology treated of in the Course of Anatomy and Physiology. The demonstrations are given on each of the first five days of the week, and are about 117 in number in each Session.

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### PRACTICE OF MEDICINE—*Professor, James Cuming,* M.D.

The class meets four times each week, from the first week of November to the last of the following April.

An examination is held usually once a fortnight. The Course embraces the principles of Inflammation, Fevers, the diseases, organic and functional, of the viscera of the three great cavities of the human body. In treating of individual diseases, their pathology, semeiology, ætiology, and treatment, are the subjects chiefly dwelt on. Wherever it is possible, pathology is illustrated by the preparations afforded by our Museum, by drawings and plates, or by recent specimens. It may be added that the Professor's present connexion with the Belfast General Hospital adds greatly to the means of making his Course more useful and interesting to students.

### THEORY AND PRACTICE OF SURGERY—*Professor, Alexander Gordon,* M.D.

Four Lectures are delivered weekly during the Medical Session. An examination is held each day on the subject of the preceding day's Lecture. Each Course comprises the following subjects:—

Inflammation,
Suppuration,
Mortification,
Erysipelas,
Burns,
Ulcers,
Wounds,
Hæmorrhage,
Diseases of the Arteries,
,, Veins,
Fractures of Trunk and Extremities,
,, Cranium, Injuries of the Brain and Scalp,
Dislocations,
Diseases of the Joints,
Diseases of the Bursae,
,, Bone, benign and malignant,
,, the Jaws and Mouth,
,, the Fingers and Toes,
,, Female Breast,
,, Anus and Rectum,
,, Testis,
,, Hernia,
,, Prostate,
,, Bladder,
,, Eyes,
,, Larynx,
Syphilis,
Gonorrhœa,
Stricture.

All the capital and minor operations are performed on the dead subject. The Professor delivers a separate Course of twenty-five Lectures on Operative Surgery.

### MATERIA MEDICA—*Professor, James Seaton Reid,* M.D.

This Course includes—

1st. General Pharmacology, or the modes in which medicines act upon the living organism in a state of health.

2nd. Therapeutics, or the modes in which medicines act as curative agents.

3rd. Pharmacy.

4th. Dietetics, a review of the different kinds of food used in health and in disease.

5th. Special Pharmacology, or the history, composition, uses, and modes of administering medicinal agents for the cure of disease.

The Class meets four times each week. An examination is held once every week.

### MIDWIFERY—*Professor, William Burden*, M.D.

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Lectures four times a week during the six winter months consist of following subjects:—

Anatomy of the pelvis, so much as is required for midwifery. Its measurement and pelvimeters.

Contents of the pelvis. The functions of the uterus in its virgin state.

Conception—length of gestation—changes of the uterus and its appendages during gestation.

Growth of child from its earliest seen form until its full parasitic size.

Graafian vesicle and corpus luteum. Fœtus, its circulation, signs of maturity, weight, and length.

Plural births.

Proportion of births and deaths of males to females.

Superfœtation.

Signs of pregnancy.

Signs of approaching labour.

Natural labour, its progress; also the positions and progress of child till its separation from its mother.

Management of natural labour, including the arrangement of the bed and bed-room, and the proper dress and posture of the patient.

Tedious labour, its causes and treatment.

Labour requiring the use of instruments; their application taught on models in the class.

Cæsarean section and Sequltean operation—how to prevent the fœtus from getting large in uterus.

Premature labour—how to bring it on, and when it is necessary to do so.

Cross-births and their treatment.

Abortion—how to prevent it.

Extra uterine fœtations—how they occur, and their treatment.

Management of women after delivery, and treatment of such accidents and diseases as occur at this period.

Management of children after birth, washing, dressing, food, &c., and the choice of a wet-nurse, and treatment of such accidents as take place at this period, or soon after.

Practical midwifery taught by pupils attending patients in their own houses and in the Lying-in hospital, where Clinical Lectures are given.

### MEDICAL JURISPRUDENCE—*Professor, Dr. Hodges.*

The Lectures in this Course are delivered twice weekly during six months. They include an account of the history and chemical investigation of poisons, and of the various subjects respecting which the evidence and assistance of Medical Practitioners may be required in Courts of Law. Experimental illustrations of the methods to be pursued in medico-legal inquiries are given, and frequent examinations held to test the progress of Students. No salary has been allocated to the Teacher of this department, and the duties, at the request of the Council, have, since the opening of the College, been performed by Dr. Hodges.

### ENGLISH LAW—*Professor, Echlin Molyneux*, Q.C.

The Professor of English Law, in conducting his department, has constantly kept in view the object of the Select Committee of the House of Commons in recommending the foundation of Chairs in Law in connexion with the Queen's Colleges, which, as they stated in their Report on Legal Education, was not merely to prepare Candidates for the Bar, and for the profession of Attorney and Solicitor, but to raise the standard of legal attainments amongst local practitioners, and especially to provide opportunities of legal education to qualify persons intended to fill administrative situations not strictly legal—a policy which has

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been since followed up by the Legislature conferring privileges, by way of inducement, on Candidates for the profession of Attorney and Solicitor, who shall avail themselves of these Schools of Law.

The Course of the *First* year in this department comprehends the elements of real and personal property, with the principles of conveyancing; that of the *Second* consists of an introduction to the principles and practice of Courts of Equity and the law of Bankruptcy; the *Third* Course includes the common law as incident to contracts, the nature and form of remedies by civil action, and an outline of criminal law, theoretical and administrative, which last completes the Curriculum of instruction required for the attainment of the Diploma of Elementary Law in the Queen's University. The subjects prescribed for Students of the *Fourth* year to qualify them for the Degree of LL.B. embrace a more extended and detailed course of the subjects already enumerated, including the law of wills, powers, evidence, and procedure.

The Lectures are made auxiliary to the cotemporaneous studies directed, and are accompanied by interrogation, independent of the General Examination and that for Honors. Such books, cases, and decisions, and portions of treatises are pointed out for reading as are considered by the Professor most useful in elucidating a branch of learning which is scarcely furnished with books exclusively intended for instruction; and no efforts have been spared to point out the peculiarities of the law in Ireland, whether proceeding from statutes or inherent diversity of practice, or to direct attention to the recent changes which have been introduced into the course of procedure.

From the first opening of the College to the present time the successive classes have spontaneously applied themselves with assiduity and perseverance to the various subjects of legal instruction, and several Non-Matriculated Students have from time to time availed themselves of the privilege afforded by the College Ordinances of attending detached Courses of the Lectures on selected subjects.

Under these circumstances, the Professor is gratified at being able to give the assurance that the Faculty of Law has fully realized the objects of its founders, and that a further extension of its public benefits would ensue upon the adoption by Government of the suggestion made by the same Committee of the House of Commons that a preference should be given to candidates for situations in the Civil Service, not of a purely legal nature, who could produce testimonials of legal attainments from those institutions—a rule which would fully accord with the principle laid down in a recent report of another Committee in relation to the Civil Service.

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## JURISPRUDENCE AND POLITICAL ECONOMY—*Professor, T. E. Cliffe Leslie*, LL.B.

The subjects embraced in the Course of Lectures on *Jurisprudence* are according to the regulations of this College, (1) the Elements of Jurisprudence, (2) Civil Law, (3) Constitutional Law, (4) Colonial and International Law.

In the treatment of these subjects both the *Historical* and *Philosophical* Methods are followed in the Lectures of the Professor. The Historical Method, for example, is applied in tracing the principal changes through which the laws of England have passed, the assignable causes of such changes, and the degree and manner in which, in comparison with the laws of Continental Europe, the laws of this kingdom have been affected by contact with the principles of Roman legislation. The method of Philosophical Analysis, on the other hand, is applied in investigating the doctrines of the foundation and classification of rights, the several parts and legitimate form of a complete code, the relation of Scientific Jurisprudence to other departments of Social Philosophy, and the means of improving the state of Positive Law as deducible from such considerations.

The subjects which a Course of Lectures on *Political Economy* must embrace are fewer and more definite than those classed under the less advanced and more complicated Science of Jurisprudence. It is the Professor's endeavour to illustrate the principles of Economic Science by the help of those practical applications which will be most interesting and useful in a large commercial town.

# APPENDIX, No. 8.

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## GENERAL CLASS EXAMINAION at the close of the SESSION 1864-65.

General Class Examination.

### FIRST YEAR STUDENTS.

THE ENGLISH LANGUAGE.—*Examiner, Professor Craik.*

1. Give a distinct account, with the dates, of the connection of the Romans with Britain from its commencement to its close.

2. Give the dates of the following events:—The arrival (as commonly stated) of the first Teutonic invaders of Britain; the Mission of St. Augustine; the first recorded descent of the Northmen, or Danes; the treaty between King Alfred and Godrum; the conquest of England by Sweyn; the restoration of the old reigning family; the establishment of the Normans in France; the Norman Conquest of England; and the commencement of the reign of each of the successors of the Conqueror to Edward III. inclusive.

3. Estimate how much we probably retain in our present English of the Celtic tongue of the old Britons, illustrating your statement by examples.

4. Explain distinctly the various successive sources from which the English language has derived whatever vocables of Latin origin it contains, or has ever contained; giving illustrative examples as you go along.

5. Describe precisely the several constituents of our present English vocabulary, distinguishing those of which it is mainly made up from those of inferior importance.

6. Explain the two great revolutions, with their causes, by which the English language has been brought from its original to its existing state.

7. Give a scientific account of the present English language:—1. In its Grammatical structure; 2. In its Vocabulary, including the *proportions* of the several ingredients of which that is composed.

8. Give an account of the present *French* language (explaining the name), and of the two great dialects into which it was formerly divided.

9. Explain the relationship to each other of the various still or recently subsisting Celtic tongues or dialects.

10. Give an account of the work called the Ormulum.

11. Explain what is meant by a Dialect as distinguished from a Language, and show how a language may naturally effloresce into a diversity, first of dialects, and finally of languages.

12. Explain the principle or rule according to which, in our present English, each of the vowels takes the *name* by which it is commonly known.

N.B.—Punctuation, as well as Grammar and Spelling, must be carefully attended to.

### SECOND YEAR STUDENTS.

LOGIC.—*Examiner, Professor M'Cosh.*

1. What division of notions was given in the class? Give examples of each kind. What reality is there in the abstract notion, *g.e.*, rationality, and in the general notion, *g.e.*, rose? What mistakes arise from misunderstanding the nature of abstract and general terms?

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General Class Examination.

2. "Two and two are four." "Books are required for a library." Specify subject and predicate in these propositions. Are the terms distributed? Interpret the propositions, so as to show the relation of the two terms. Convert the second proposition, and put it in the various forms of opposition.

*3. Are EIE, OAO, AEE, EAI, IEO, allowable moods? If so, in what figures? If not, give the reason.

*4. Show that a universal affirmative cannot be drawn in the second or third figures.

5. "These sinners were sinners above all the Galileans, because they suffered such things." What major premiss is necessary to make this reasoning valid? Disprove by a syllogism in the third figure. Reduce this syllogism to the first figure.

6. Define a conditional proposition, and explain the nature, the parts, and the rules of conditional reasoning. Examine the following; indicate the antecedent and consequent, major and minor premiss and conclusion; and reduce it to categorical form:—"If the man has committed murder there will be blood upon his clothes; there is blood upon his clothes; therefore he has committed murder.

7. A celebrated author, in arguing against the Aristotelian analysis of reasoning, shows that men can reason without knowing the syllogism. What fallacy has he been guilty of? Define that fallacy, and illustrate its nature by the example.

*8. What purposes are served by hypotheses in induction? Under what conditions are hypotheses allowable? You are invited to illustrate by examples.

*9. What aids and guides in generalization are furnished by the works of nature? What is meant by the classes called Kinds? When may we conclude that we have reached a natural class?

10. "I always feel the rheumatism most in March, and I believe it is owing to the prevalence of the cold searching east wind which prevails at that season." What is necessary to bring this case under the Method of Difference? In answering this question, enunciate the Canon of that Method.

11. What is the argument from analogy? When is it conclusive, positively and negatively? What fallacies may spring from analogy? Examine the following:—"The capital bears the same relation to the country as the heart does to an animal. As the enlargement of the heart is injurious to the animal, so too great a metropolis may be perilous to a country."

12. What place has deduction in mathematics? What in natural philosophy? What is meant by verification of inductions? Illustrate by examples.

N.B.—Those seeking Honors omit the questions marked (*), and answer the following:—

### HONOR QUESTIONS.

*a.* Put the *reasoning* in the following statement against pantheism in logical form, supplying premisses when needful:—"If it can be shown that there are two or more persons, it follows that all is not one, that all is not God. According to every scheme of pantheism, I, as a part of the universe, am part of God, part of the whole which constitutes God. In all consciousness of self, we know ourselves as persons; in all knowledge of other objects, we know them as different from ourselves, and ourselves as different from them. God then must be different from one part of his works. He must be different from me."

β. "Some poets are not wise.
All poets are men of genius."

What is the conclusion? Indicate the mood and figure, and reduce the syllogism both ostensively and by *reductio ad impossibile.*

γ. All the Indo-European languages have the same word for the common operations of husbandry (as in Sanscrit *Ar*, in Latin *Arvum*). It seems, also, they have the same word for cold (*Himalaya, Hyems, &c.*). But all the languages have not the same words for the common metals; thus they have not the same word for iron. It is argued that the races speaking these languages must all have sprung from an agricultural people dwelling in a country exposed to cold, and that they must have separated before they knew the principal arts. What canon or canons of induction would justify this inference?

δ. By what criteria would you test the following?

(*a*) An axiom proffered without proof.
(*b*) An inference from proof furnished.
(*c*) A class of plants declared to be a natural one.
(*d*) The supposed cause of a natural phenomenon.
(*e*) The occurrence of an alleged historical event, say the Siege of Troy.

### ZOOLOGY.—*Examiner, Professor Wyville Thomson.*

1. Give in detail the characters of the Cephalopoda, and contrast them with those of the Pteropoda.
2. Describe the structure of the nudibranchiate Mollusca, and state the relative positions of the heart and branchiæ in this group.
3. Describe the structure of the respiratory apparatus in the pulmonate Mollusca.
4. Sketch the classification of the Crustacea.
5. Sketch the devolpment of the Cirrhipedia.
6. Describe the struction of the compound eye of an Insect.
7. Contrast the Coleoptera and the Hemiptera, in structure, and mode of development.
8. Give a general sketch of the structure of one of the Annellida dorsibranchiata.
9. Describe the distribution of the ambulacral vascular system of the Echinodermata.
10. Describe the structure of Hydra.
11. Describe some of the principal modifications of the hydroid type.
12. Give the characters of the Protozoa Radiolaria, and distinguish them from the Reticulosa.

### LAW OF PROPERTY.—*Examiner, Professor Molyneux.*

1. For what two classes of cases do the Statutes against fraudulent or voluntary conveyances of real property provide? And in what instance is the operation of one of them modified by Courts of Equity?
2. What word is essential in a deed to create an estate of inheritance?
3. State the rule in Shelley's case.
4. In what instance is the consent of a protector of the settlement necessary toward the barring of remainders and reversion?
5. What trusts are not within the operation of the statute of uses?

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General Class Examination.

6. What are the husband's rights in relation to his wife's estate of inheritance?

7. Devise of a freehold in black acre and of a term of years in white acre to A B and the heirs of his body, what estate does he take in them respectively?

8. What were the necessary forms of assurance for the conveyance of real property before the 8th & 9th Vic.?

9. What is a mortgage? How is it viewed in a Court of Equity? and how in a Court of Law?

10. What is the nature of the equitable doctrine of conversion, and how does it operate as between the claimants of the real and personal estate of a deceased person?

11. In what consists the difference between a legal and equitable estate?

12. Enumerate the several subjects of personal property.

12. What is a remainder?

14. A B being seized of an estate in fee simple, which he had derived as heir *ex parte materna*, by settlement executed after the Inheritance Act, 3 & 4 Wm. IV., came into operation, limits it to C D in tail, with remainder to his own right heirs. C D dies without issue; and afterwards A B dies intestate, leaving a paternal uncle and a maternal aunt his sole relatives him surviving. Which of those two persons will succeed to the estate? And which would have succeeded if A B had executed the settlement before the Act was passed? And what is the provision of the Statute which affects the tracing of the inheritance in such a case?

15. Of what did tithes originally consist? and what were the statutable changes to which that class of property has been subjected in Ireland?

16. What is the nature and operation of the Judgment Act of 1850, as now in force in Ireland?

17. Conveyance of real estate by A B directly to C D for life, remainder to E F, a minor, son of C D, and heirs of his body, and if he shall die before he shall arrive at the age of twenty-one, the remainder to X Y Z, and his heirs; what are the several estates thereby created in point of duration?

18. What advantage has the indorsee of a bill of exchange over the assignee of a bond in reference to their respective remedies?

19. State some of the particulars in which the rules which respectively govern the devolution of title to real and personal property on the death of the owner intestate correspond; and state some of the particulars in which they differ.

20. In what respect does the rule of construction applied to executory agreements differ from that applied to formal conveyances, in relation to limitations of property thereby respectively provided?

21. Where a tenant at will remains in possession; after what period is the right to determine the tenancy and bring an action for the recovery of the land lost through operation of the statute of limitations?

22. In what cases do personal rights of the wife rest only conditionally in the husband?

23. What class of estate of inheritance of the husband does not entitle the wife to dower? and what class of estate of inheritance in the wife does not entitle the husband to an estate by the curtesy?

24. In what case does the word heir, in a deed, not create an estate of inheritance in the ancestor?

25. Give an instance in which a lease is void, and an instance in which it is only voidable.

### JURISPRUDENCE.—*Examiner, Professor Leslie.*

1. What is the historical connexion between the English and the Roman law of wills?

2. Explain historically the cause of the distinction between law and equity in the English legal system.

3. What does Austin mean by general jurisprudence?

4. Give examples of distinctions in general jurisprudence which are not found in ancient law?

5. Give examples of distinctions in ancient law which do not exist in general jurisprudence.

6. Give examples of distinctions in general jurisprudence which are not made in English law.

7. Give examples of distinctions in English law which do not exist in general jurisprudence.

8. Explain the distinction between the law of persons and the law of things.

9. What are the different distinctions denoted by written and unwritten law?

10. How far does antiquity, even according to the principles of Bentham, afford a reason for maintaining existing institutions.

11. Explain Bentham's classification of the evils against which laws should guard, into evils of the first, second, and third order.

12. Explain the grounds of the modern changes in the law relative to the admissibility of evidence.

12. State the views of Adam Smith and Bentham respectively as to the proper mode of defraying the expenses of administering justice to suitors.

14. What are, according to Austin, the distinguishing marks of sovereignty?

15. What are "half sovereign states"?

16. When were itinerant justices of assize instituted, and what, according to Hallam, was the effect of this institution upon English law?

17. What were the original functions of the jury?

18. State the different changes in the descent of lands which were made between the Conquest and the time of Glanville.

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### CIVIL LAW.—*Examiner, Professor Leslie.*

1. Sketch briefly the principal epochs in the historical relations between English and Roman law.

2. Cite proofs of the influence of Roman law upon the law of England before the conquest.

3. Why does Mr. Maine class English case-law under the head of legal fictions, and why does it resemble in this respect the *responsa* of the Roman jurisconsults?

4. Explain the original and subsequent meaning of the Perpetual Edict.

5. Explain the terms *quasi-contract* and *quasi-delict.*

6. State the general classification of *jura in personam* in Roman law and Austin's jurisprudence respectively.

7. Is the distinction between the law of persons and the law of things fundamental and strictly logical or not, and why?

8. What is the connexion between English *trusts* and Roman *fidei commissa*?

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General Class Examination.

9. State some other cases of the appearance of Roman legal principles in English equity.

10. What is the reason given in Roman law for treating custom as law, and how is it criticised by Austin.

11. Explain the terms *universitas juris*, and *universal succession.*

12. Explain the connexion between the *mancipatio* of ancient Roman law and the latest Roman *testament.*

## THIRD YEAR ARTS STUDENTS.

### POLITICAL ECONOMY.—*Examiner, Professor Leslie.*

1. Define the terms *price, cost of production,* and *direct* and *indirect taxation.*

2. How does cost of production regulate prices in general?

3. What is the connexion between the price of corn and its cost of production?

4. How does agricultural rent arise, and on what does its amount depend?

5. Enumerate the principal causes which produce differences in the rate of wages and profit in different employments, and explain briefly how they do so.

6. On what does the relative value of commodities produced in different countries depend?

7. Is corn a good measure of value or not, and why?

8. Show how the influx of additional money into a country, after the discovery of new mines in another country, affects prices in the former.

9. Explain what is meant by "the balance of trade."

10. Can the effect of the new gold on prices be precisely measured by the changes in prices or not, and why?

11. Was the rise of prices in the new gold countries, in the two years after the discovery of the mines, caused by the new gold alone?

12. Was the rise in the prices of some important commodities in England, in 1853—1856, caused by the new gold alone?

13. Show that the new gold disturbed the equality of wages and profit in different employments.

14. Is the statement that the new gold affected prices differently in different trades consistent with the doctrine of cost of production or not, and why?

15. Is a tax on rent a direct or an indirect tax, and why?

16. Is a separate tax on farmers' profit a direct or an indirect tax, and why?

17. By what persons are the losses occasioned by the shipwreck of insured trading vessels borne, and why?

18. By what persons are the losses occasioned by fires of insured dwelling-houses borne, and why?

### ENGLISH LITERATURE.—*Examiner, Professor Craik.*

1. *Each competitor* will head his answers with a statement of the study in which he conceives that he has made the greatest progress up to the present time, and of what the amount of that progress is.

2. Relate the history of the English Language from the middle of the

eleventh to the middle of the fourteenth century, noting the revolutions undergone by it in the course of those three hundred years, and explaining how each was brought about.

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General Class Examination.

3. Mention one writer in verse and one in prose belonging to each century from the fourteenth to the nineteenth inclusive—the more eminent the better—and describe briefly but distinctly what they have severally done in our literature.

4. Give an account of what had been done in Dramatic Literature in England before the appearance of Shakespeare.

5. Give an account of any one considerable poetical work belonging to either the eighteenth or the nineteenth century.

6. Give an account of any English work in prose that you have read.

7. Describe the characters of Brutus, of Cassius, of Antony, and of Octavius, as set forth in Shakespeare's play of *Julius Cæsar.*

8. State some of the grounds for the usual division of a regular drama into Five Acts.

9. Sketch the biography of Chaucer, or of Spenser, or of Shakespeare, or of Milton, or of Swift, or of Pope, or of Johnson, or of Burke.

10. Explain any words or forms philologically noteworthy which you may remember in the first eighteen lines of the Prologue to the Canterbury Tales.

11. Explain the following passage from the same introductory portion of Chaucer's great poem, with minute attention to every peculiarity :—

> Ther was also a Nonne, a Prioresse,
> That of hire smiling was ful simple and coy,
> Hire gretest othe n'as but by Seint Loy,
> And she was cleped Madam Eglentine;
> Ful wel she sange the service devine,
> Entuned in her nose ful swetely;
> And Frenche she spake ful fayre and fetisly,
> After the scole of Stratford atte Bowe,
> For Frenche of Paris was to hire unknowe:
> At mete was she wel ytaughte withalle.

12. Give an exact account of the forms of verse employed by Chaucer, for the greater part, in the Canterbury Tales, by Spenser in his Fairy Queen, by Shakespeare in his Plays, by Milton and others in their Sonnets, by Sir John Davies in his *Nosce Teipsum,* by Swift mostly, by Pope generally, by Scott in his Lady of the Lake and other poems, by Chapman in his Iliad, by Drayton in the Polyolbion, by Tennyson in his Locksley Hall, and by the same writer in his *In Memoriam.*

13. Explain what you conceive to be the true relation of Expression to Thought.

14. Define Artistic writing, or Literature properly and distinctively so called.

15. Explain the various elements that make up the charm of verse.

16. State distinctly, but simply and without any attempt at explanation, what Plato says about Poetry being Imitation in his *De Republica,* and the doctrine on the same subject laid down by Aristotle.

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## METAPHYSICS.—*Examiner, Dr. M'Cosh.*

1. State exactly the doctrine of Brown and that of Hamilton as to the nature of sense-perception. You are invited to offer comments.

2. What seem to be our original perceptions by the sense of sight? Show clearly and fully how we come to measure distance by the eye.

General Class Examination.

*3. Evolve the intuitive perceptions involved in the exercise of self-consciousness.

4. Bring out fully what is involved in the recognitive power of the mind. How do you account for the apparent deception of memory at times?

*5. What is the power of composition? What claim has it to be regarded as a separate power of the mind? What elements meet in imagination?

*6. Distinguish between the phantasm and the abstract and general notion. Give a psychological analysis of the faculties employed in the formation of the general notion.

7. Explain what is meant by the relation of identity, especially the identity of self. Enunciate the principles of identity proper, contradiction, and excluded middle.

8. Show what place idea or apprehension has in emotion. What kind of ideas excite emotion?

*9. Explain as clearly as you can what is involved in that beauty which is called "intellectual." In doing so, refer to some of the more famous theories on this subject.

10. State and briefly illustrate the difference between the spontaneous exercise and the reflex use of intuition. Which comes first? In which may there be error?

11. How are mathematical axioms formed by the mind? Are they the result of a gathered experience? Is there any discursive process involved in their formation?

12. What is the *differentia* of will? How is it distinguished from emotion? Is wish an exercise of emotion or will? Is there a distinction between desire and volition? What voluntary element is in benevolence?

N.B.—Students seeking honors omit those marked (*), and answer the following :—

### HONOR QUESTIONS.

(α.) D. Stewart remarks, "The miserable quibble about the non-existence of secondary qualities never could have attracted the notice of so many profound thinkers had it not been for a peculiar difficulty connected with our notions of colour." What is the peculiar difficulty referred to? Can it be met?

(β.) One class of thinkers declare that there is a beauty in the object, whereas another class refer all beauty to association of ideas. Name the framers of these theories and eminent men holding by each. Give a general estimate of the theories.

(γ.) What can be shown in regard to knowledge by metaphysicians? What is Locke's account of knowledge, and what its defects? State and examine the *phenomenal* and *relativity* theories of knowledge.

(δ.) What is Locke's account of the genesis of the idea of power? What truth and oversight is there in it? Show precisely how we get our idea of power, and answer objections.

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*1. When was Bacon's "Novum Organum" published? It is said that, according to him, the steps which should be followed in the sciences may be reduced to three fundamental processes. What are these three? What is meant by "prerogative instances?"

*2. What were the views of matter taken respectively by Descartes and Leibnitz? Do you discover any defects in these? If so, what? What do we seem to know of matter intuitively?

3. Locke means by "idea?" What considerations and arguments does

he advance to show that man has no innate ideas? You may offer remarks on his misapprehensions.

*4. How do we get the idea of time? In what book of his "Essay" does Locke treat of this subject? What account does he give? What view does Kant give? You are invited to offer comments on the theories of Locke and Kant.

5. State precisely Hume's doctrine of causation. Wherein had it a sceptical tendency? How would you meet it?

*6. Specify as many as you remember of Reid's judgments of common sense relating to contingent truth. Try them by the tests of intuition.

7. What function does Kant allow to the practical reason? What is its rule? What are the three postulates without which it could not be conceived?

8. Name the more famous British moralists who represent the moral power in man as being of the nature of reason. Briefly sketch their individual opinions, and say what truth and what error there is in their views.

9. In what way does Bentham make a moral valuation of actions? Indicate the objections which may be taken to his theory of morals.

10. What are the three elementary faculties of the mind, according to Cousin? Specify the functions of each. Do all the operations of the mind proceed from these three?

11. What is Samuel Clarke's argument, and what Descarte's argument, in behalf of the Divine existence? Is there any force in these arguments? Are they sufficient?

12. Name about half a dozen of the most learned metaphysicians, and about the same number of the most original metaphysicians of Great Britain and Ireland prior to our age.

N.B.—Students seeking honors omit those marked (*), and answer the following :—

### HONOR QUESTIONS.

(*a*.) What is implied in substance? State and compare the doctrines as to substance given by Descartes, Spinoza, Locke, and Berkeley. Examine the theory, that substance is the support of qualities.

(*β*.) Indicate briefly the relation of Fichte to Kant. How would you most effectually meet their idealism?

(*γ*.) What elements are to be found in our idea and conviction as to the infinite? What philosophers have held that the idea is negative? In what state is the discussion on this subject at this present time?

(*δ*.) Enunciate and compare the categories of Aristotle, Kant, and Cousin.

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## GEOLOGY AND PHYSICAL GEOGRAPHY.—*Examiner, Professor Wyville Thomson.*

### 1. *Geology.*

1. Describe some of the most marked phenomena of denudation.

2. Describe the formation of a "Valley of denudation."

3. Under what altered conditions, as to structure and position, do we usually find the older Paleozoic rocks in Britain, and what have been the causes of these alterations?

4. How would you distinguish an "intruded" bed of trap.

5. Distinguish, mineralogically, the hornblendic from the felspathic series of lavas.

*Appendix, No. 8.*

General Class Examination.

6. Sketch the main features of the Palæozoic Fauna, and distinguish it from that of the Cainozoic period.

7. Name and describe some of the most characteristic genera of Palæozoic Mollusca, and contrast them with their representative Mezozoic Genera.

8. Sketch the distribution in time of the species of the Genera Lingula, Trinucleus, Orthis, Orthoceras, and Nautilus.

### 2. *Physical Geography.*

1. Sketch the phenomena and history of an Arctic Glacier.

2. Give the evidences in favour of the subsidence of the bed of the Pacific during the present epoch.

3. Is vegetation and the distribution of vegetable species more influenced by Isothermal, Isotheral, or Isocheimonal conditions? and why?

4. What is the cause of the Gulf Stream, and what are its effects?

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## ANATOMY AND PHYSIOLOGY.—*Examiner, Dr. Redfern.*

[First Year Students are required to answer questions 1, 2, 3, 4; Second Year, 2, 3, 4, 5; and Third and Fourth Year, 3, 4, 5, 6.]

1. Mention the chief varieties in the general characters and structure of bone in animals, and the instances in which they respectively occur.

2. Describe the process of healing of wounds of articular cartilages, and that of union of two opposed articular cartilages.

3. Give an account of the papillæ of the skin, and compare them, in point of size and structure, with those of the tongue and the villi of the intestines.

4. Describe the structure, process of development, and function of the chorion and allantois.

5. Give a short account of the pharynx, its size, shape, attachments, structure, vessels, nerves, and uses.

6. Where are closed follicular glands to be found in the human alimentary canal? State their relation to the mucous membrane, and what modifications occur in the structures of the mucous membrane, in each instance you mention.

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## PRACTICAL ANATOMY.—*Examiner, Dr. Redfern.*

[First Year Students are required to answer questions 1, 2, 3, 4; Second Year, 1, 2, 4, 5; and Third and Fourth Year, 1, 4, 5, 6.]

1. Name the specimens numbered 1 to 10. State to which side of the body each belongs. Mention the bones with which each articulates, and the distinguishing characters of one articular surface, at least, on each specimen.

2. The dissection of the thorax and back having been completed, describe the position and the method of exposing each of the ligaments of the dorsal vertebræ and ribs.

3. Describe the arterial anastomoses in the neighbourhood of the ankle and heel, with the position and relations of each.

4. The cavity of the chest having been opened in the usual way, the right lung drawn forwards and to the left, and the pleura stripped off, what parts are to be dissected on the surface thus exposed, and where and for what extent will each be found?

*Appendix, No. 8.*

General Class Examination.

5. The abdomen having been opened, state in what order, and by what dissections, the pelvic viscera and the parts connected with them are to be examined.

6. Describe the cardiac plexuses, and the branches connected with them. State where these parts are to be found, and how they are to be exposed in the chest.

## MEDICAL JURISPRUDENCE.—*Examiner, Dr. Hodges.*

1. Describe the precautions required in the examination of wounds on the bodies of persons found dead.
2. What are the tests to be employed for the detection of picrotoxine?
3. How is the purity of the copper used in Reinsch's process to be ascertained?
4. What is the treatment required in cases of poisoning by oxalic acid?
5. Give an account of the method of employing electrolysis for the separation of arsenic and antimony from liquids containing organic matter.
6. Describe the method of employing dialysis for the separation of poisons from the contents of the stomach.

## GREEK.—*Examiner, Professor MacDouall.*

### FIRST YEAR STUDENTS.

I.—Translate accurately the opening sentences of the *Cyropaedeia*:—

*"Εννοιά ποθ' ἡμῖν ἐγένετο ὅσαι δημοκρατίαι κατελύθησαν[1] ὑπὸ τῶν ἄλλως πως βουλομένων[3] πολιτεύεσθαι μᾶλλον ἢ ἐν δημοκρατίᾳ, ὅσαι τ' αὖ μοναρχίαι, ὅσαι τε ὀλιγαρχίαι ἀνῄρηνται[1] ἤδη ὑπὸ δήμων, καὶ ὅσοι τυραννεῖν ἐπιχειρήσαντες[2] οἱ μὲν αὐτῶν[3] καὶ ταχὺ πάμπαν[2] κατελύθησαν, οἱ δέ, κἂν[2] ὁποσονοῦν χρόνον ἄρχοντες διαγένωνται, θαυμάζονται ὡς σοφοί τε καὶ εὐτυχεῖς ἄνδρες γεγενημένοι. πολλοὺς δ' ἐδοκοῦμεν καταμεμαθηκέναι[1] καὶ ἐν ἰδίοις οἴκοις τοὺς μὲν ἔχοντας καὶ πλείονας οἰκέτας, τοὺς δὲ καὶ πάνυ ὀλίγους καὶ ὅμως οὐδὲ τοῖς ὀλίγοις τούτοις πάνυ τι δυναμένους χρῆσθαι πειθομένοις.[3] ἔτι δὲ πρὸς τούτοις ἐνενοοῦμεν[1] ὅτι ἄρχοντες μέν εἰσι καὶ οἱ βουκόλοι[2] τῶν βοῶν[3] καὶ οἱ ἱπποφορβοὶ[2] τῶν ἵππων, καὶ πάντες δὲ οἱ καλούμενοι νομεῖς[2] ὧν[3] ἂν ἐπιστατῶσι[1] ζῴων εἰκότως[2] ἂν ἄρχοντες τούτων νομίζοιντο· πάσας τοίνυν τὰς ἀγέλας[3] ταύτας ἐδοκοῦμεν ὁρᾶν μᾶλλον ἐθελούσας πείθεσθαι τοῖς νομεῦσιν[3] ἢ τοὺς ἀνθρώπους τοῖς ἄρχουσι.[3] πορεύονταί τε γὰρ αἱ ἀγέλαι ᾗ[3] ἂν αὐτὰς εὐθύνωσιν οἱ νομεῖς, νέμονταί τε χωρία ἐφ' ὁποῖα ἂν αὐτὰς ἐφιῶσιν, ἀπέχονταί τε ὧν[3] ἂν αὐτὰς ἀπείργωσι· καὶ τοῖς καρποῖς τοίνυν τοῖς γιγνομένοις ἐξ αὐτῶν ἐῶσι[1] τοὺς νομέας χρῆσθαι οὕτως ὅπως ἂν αὐτοὶ βούλωνται. ἔτι τοίνυν οὐδεμίαν πώποτε ἀγέλην ᾐσθήμεθα[1] συστᾶσαν[1] ἐπὶ τὸν νομέα οὔτε ὡς μὴ πείθεσθαι οὔτε ὡς μὴ ἐπιτρέπειν τῷ καρπῷ χρῆσθαι, ἀλλὰ καὶ χαλεπώτεραί εἰσιν αἱ ἀγέλαι πᾶσι[3] τοῖς ἀλλοφύλοις[2] ἢ τοῖς ἄρχουσί τε αὐτῶν καὶ ὠφελουμένοις[1] ἀπ' αὐτῶν· ἄνθρωποι δὲ ἐπ' οὐδένας μᾶλλον συνίστανται ἢ ἐπὶ τούτους οὓς ἂν αἴσθωνται[1] ἄρχειν αὐτῶν ἐπιχειροῦντας.*

*Appendix, No. 8.*

General Class Examination.

II.—1. Parse fully all the words to which the figure (1) is attached, giving the principal tenses of each verb which are actually used in Attic prose.

2. Derive or decompound every word to which the figure (2) is attached.

3. Explain the construction of every word in genitive or dative case to which the figure (3) is attached.

4. Illustrate from the above extract the construction of clauses complementary to verbs that denote perception or reflexion or discourse, both the clauses which turn upon a finite verb after a relative,—for the time and mode of which verb you will give rules,—and those which substitute an infinitive or a participle.

5. Discriminate the functions of *οὐ* and *μή*, and explain the usage of both in the phrase, *οὔτε ὡς μὴ πείθεσθαι οὔτε ὡς μὴ ἐπιτρέπειν.*

6. State, and exemplify from the extract, rules for the use or omission of *ἂν* in both principal and subordinate clauses.

[N.B.—Questions 1 and 2 are for Pass, and questions 3, 4, 5, 6, are for Honors. Question 1 need not be answered by those who take up the Honor questions].

I.—Translate in a perspicuous style these strophes from the *Helene* of Euripides :—

ʽΕΛΕΝΗ *ἰὼ ἰώ!* *στρ. β.*
*θήραμα*[1] *βαρβάρου πλάτας,*
*Ἑλλανίδες*[1] *κόραι!*
*ναύτας Ἀχαιῶν τις ἔμολεν ἔμολε*
*δάκρυα δάκρυσί μοι φέρων,*
*Ἰλίου κατασκαφὰν*[1]
*πυρὶ μέλουσαν δαΐῳ*[1]
*δι᾽ ἐμὲ τὰν πολυκτόνον,*[1]
*δι᾽ ἐμὸν ὄνομα πολύπονον.*[1]
*Λήδα δ᾽ ἐν ἀγχόναις*[1]
*θάνατον ἔλαβεν*
*αἰσχύνας ἐμᾶς ὑπ᾽ ἀλγέων.*
*ὁ δ᾽ ἐμὸς ἐν ἁλὶ πολυπλανὴς*[1]
*πόσις*[1] *ὀλόμενος οἴχεται,*
*Κάστορός τε συγγόνου τε*
*διδυμογενὲς*[1] *ἄγαλμα*[1] *πατρίδος*
*ἀφανὲς*[1] *ἀφανὲς ἱππόκροτα λέλοιπε δάπεδα*
*γυμνάσιά*[1] *τε δονακόεντος*[1]
*Εὐρώτα*[1] *νεανιᾶν*[1] *πόνον.*
ΧΟΡΟΣ. *αἰαῖ αἰαῖ!* *ἀντ. β*
*ὦ δαίμονος πολυστόνου*
*μοίρας τε σᾶς γύναι!*
*αἰὼν δυσαίων τις ἔλαχεν ἔλαχεν,*
*ὅτε σε τέκετο ματρόθεν*
*Ζεὺς πρέπων δι᾽ αἰθέρος*
*χιονόχρως*[1] *κύκνου πτερῷ.*[1]
*τί γὰρ ἄπεστί σοι κακῶν;*
*τίνα δὲ βίοτον οὐκ ἔτλας;*

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General Class Examination.

*μάτηρ μὲν οἴχεται,*
*δίδυμά τε Διὸς*
*οὐκ εὐδαιμονεῖ[1] τέκεα φίλα,[1]*
*χθόνα δὲ πάτριον οὐχ ὁρᾷς,*
*διὰ δὲ πόλεας ἔρχεται*
*βάξις,[1] ἅ σε βαρβάροισι*
*λέχεσι, πότνια![1] παραδίδωσιν,*
*ὁ δὲ σὸς ἐν ἁλὶ κύμασί[1] τε λέλοιπε βίοτον,*
*οὐδέ ποτ' ἔτι πάτρια μέλαθρα[1]*
*καὶ τὰν Χαλκίοικον[1] ὀλβιεῖς.[1]*

II.—1. Derive or decompound the words to which the figure (1) is attached, elucidating the rules of word-building, noticing peculiarities, and remarking upon the accentuation of such words as *Ἑλλανίδες, ἀφανές, πολύπονον, πολυκτόνον, πολυπλανής*, &c.

2. (*a*) Do you notice any Dorism in the above lines besides the use of *ᾱ* instead of *η*? (*b*) How do you account for the admission of Doric forms into the lyric portions of Attic tragedy?

3. Single out some of the words which you believe to be exclusively poetic, and substitute their prosaic counterparts.

4. Explain the several references in the extract to the parents, brothers, and husband of Helenē, and to her own story as treated in this play.

[N.B.—At least one question is to be answered in order to pass the Examination.]

## SECOND YEAR STUDENTS.

I.—Translate the following paragraph from the Second Book of Herodotus:—

*Ἐς Σάϊν δὲ πόλιν ἐπεὰν[1] συλλεχθέωσι,[1] τῆς θυσίης ἐν τῇ νυκτὶ λύχνα[2] καίουσι πάντες πολλὰ ὑπαίθρια[2] περὶ τὰ δώματα κύκλῳ· τὰ δὲ λύχνα ἐστὶ ἐμβάφια[2] ἔμπλεα[1] ἁλὸς καὶ ἐλαίου· ἐπιπολῆς[2] δε ἔπεστι αὐτὸ τὸ ἐλλύχνιον. καὶ τοῦτο καίεται παννύχιον. καὶ τῇ ὁρτῇ[1] οὔνομα[1] κέεται[1] "λυχνοκαΐη."[1] οἳ δ' ἂν μὴ ἔλθωσι τῶν Αἰγυπτίων ἐς τὴν πανήγυριν[2] ταύτην, φυλάσσοντες τὴν νύκτα τῆς θυσίης καίουσι καὶ αὐτοὶ πάντες τὰ λύχνα. καὶ οὕτω οὐκ ἐν Σάϊ μούνῃ[1] καίεται, ἀλλὰ καὶ ἀνὰ πᾶσαν Αἴγυπτον. ὅτευ[1] δὲ εἵνεκεν[1] φῶς ἔλαχε καὶ τιμὴν ἡ νὺξ αὕτη, ἔστι ἱρὸς περὶ αὐτοῦ λόγος λεγόμενος. ἐς δὲ Ἡλίου πόλιν καὶ Βουτοῦν[1] θυσίας μούνας ἐπιτελέουσι[1] φοιτέοντες.[1] ἐν δὲ Παπρήμι θυσίας μὲν καὶ ἱρά, κατάπερ[1] καὶ τῇ ἄλλῃ, ποιεῦσι.[1] εὖτ'[1] ἂν δὲ γίνηται[1] καταφερὴς[1] ὁ ἥλιος, ὀλίγοι μέν τινες τῶν ἱρέων περὶ τὤγαλμα[1] πεπονέαται, οἱ δὲ πολλοὶ αὐτῶν ἐκ ξύλων κορύνας ἔχοντες ἑστᾶσι τοῦ ἱροῦ ἐν τῇ ἐσόδῳ· ἄλλοι δὲ εὐχωλὰς ἐπιτελέοντες, πλεῦνες[1] χιλίων ἀνδρῶν, ἕκαστοι ἔχοντες ξύλα καὶ οὗτοι, ἐπὶ τὰ ἕτερα ἀλέες[1] ἑστᾶσι. τὸ δε ἄγαλμα, ἐὸν ἐν νηῷ[1] μικρῷ ξυλίνῳ κατακεχρυσωμένῳ, προεκκομίζουσι τῇ προτεραίῃ[1] ἐς ἄλλο οἴκημα ἱρόν. οἱ μὲν δὴ ὀλίγοι οἱ περὶ τὤγαλμα λελειμμένοι ἕλκουσι τετράκυκλον[2] ἅμαξαν[2] ἄγουσαν τὸν νηόν τε καὶ τὸ ἐν τῷ νηῷ ἐνεὸν[1] ἄγαλμα· οἱ δὲ οὐκ ἐῶσι, ἐν τοῖσι προπυλαίοισι ἑστεῶτες,[1] ἐσιέναι· οἱ δὲ εὐχωλιμαῖοι,[2] τιμωρέοντες[1] τῷ θεῷ, παίουσι αὐτοὺς ἀλεξομένους. ἐνθαῦτα[1] μαχη ξύλοισι καρτερὴ[1] γίνεται· κεφαλάς τέ συναράσσονται, καί, ὡς ἐγὼ δοκέω, πολλοὶ καὶ ἀποθνήσκουσι ἐκ τῶν τρωμάτων·[1] οὐ*

*Appendix, No. 8.*

General Class Examination.

*μέντοι οἵ γε Αἰγύπτιοι ἔφασαν ἀποθνήσκειν οὐδένα. τὴν δὲ οανήγυριν ταύτην ἐκ τοῦδε νομίσαι φασὶ οἱ ἐπιχώριοι· οἰκέειν ἐν τῷ ἱρῷ τούτῳ τοῦ Ἄρεος τὴν μητέρα· καὶ τὸν Ἄρεα ἀπότροφον[2] γενόμενον ἐλθεῖν ἐξανδρωμένον[1] ἐθέλοντα τῇ μητρὶ συμμίξαι· καὶ τοὺς προπόλους τῆς μητρός, οἷα οὐκ ὀπωπότας[1] αὐτὸν πρότερον, οὐ περιορᾶν παριέναι[1] ἀλλ᾽ ἀπερύκειν· τὸν δ᾽ ἐξ ἄλλης πολιος[1] ἀγαγόμενον ἀνθρώπους τούς τε προπόλους τρηχέως[1] περισπεῖν[1] καὶ ἐσελθεῖν παρὰ τὴν μητέρα. ἀπὸ τούτου τῷ Ἄρεϊ ταύτην τὴν πληγὴν[1] ἐν τῇ ὁρτῇ νενομικέναι φασὶ.*

II.—1. (*a*) Give the Attic forms of the words to which the figure (1) is attached; or, if any of them are not used in Attic, give their Attic equivalents. (*b*) Point out also some words which would have *ν* final (*ἐφελκυστικὸν*) in Attic; and, in regard to *hiatus*, show how the Herodotean usage differs from both the Homeric and the Attic.

2. Derive or decompound the words to which the figure (2) is attached.

3. Annex brief notes, geographical, mythological, and archaeological, on Sais, Heliopolis, Buto, Papremis, Ares, and on the rites and usages associated with them respectively in this passage.

4. Give an account of the usages at Papremis, in Attic diction and style, freely transposing and condensing the statements of Herodotus, with a view to symmetry and terseness.

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I.—Translate these lines from Book II. of the *Odysseia*:—

*οἳ δ᾽ ἐπελώβευον[2] καὶ ἐκερτόμεον[2] ἐπέεσσιν.*
*ὧδε δέ τις εἴπεσκε[1] νέων ὑπερηνορεόντων·[2]*
*“ἦ μάλα Τηλέμαχος φόνον ἡμῖν μερμηρίζει.[2]*
*ἤ τινας ἐκ Πύλου ἄξει ἀμύντορας ἠμαθόεντος,[2]*
*ἢ ὅγε καὶ Σπάρτηθεν,[1] ἐπεί νύ περ ἵεται αἰνῶς·*
*ἠὲ καὶ εἰς Ἐφύρην ἐθέλει, πίειραν[2] ἄρουραν,[2]*
*ἐλθεῖν, ὄφρ᾽ ἔνθεν θυμοφθόρα[2] φάρμακ᾽ ἐνείκῃ,[1]*
*ἐν δὲ βάλῃ κρητῆρι[2] καὶ ἡμέας πάντας ὀλέσσῃ.”*
*ἄλλος δ᾽ αὖ εἴπεσκε νέων ὑπερηνορεόντων·*
*“τίς[2] οἶδ᾽, εἴ κε καὶ αὐτὸς ἰὼν κοίλης ἐπὶ νηὸς*
*τῆλε φίλων ἀπόληται ἀλώμενος, ὥσπερ Ὀδυσσεύς;*
*οὕτω κεν καὶ μᾶλλον ὀφέλλειεν[1] πόνον ἄμμιν.[1]*
*κτήματα γάρ κεν πάντα δασαίμεθα,[1] οἰκία δ᾽ αὖτε*
*τούτου μητέρι δοῖμεν[1] ἔχειν ἠδ᾽ ὅστις ὀπυίοι.”*
*ὣς φάν.[1] ὁ δ᾽ ὑψόροφον[2] θάλαμον κατεβήσατο[1] πατρὸς*
*εὐρύν, ὅθι νητὸς[2] χρυσὸς καὶ χαλκὸς ἔκειτο,*
*ἐσθής τ᾽ ἐν χηλοῖσι,[2] ἅλις τ᾽ εὐῶδες[2] ἔλαιον.*
*ἐν δὲ πίθοι οἴνοιο παλαιοῦ ἡδυπότοιο*
*ἕστασαν,[1] ἄκρητον[2] θεῖον ποτὸν ἐντὸς ἔχοντες,*
*ἑξείης[2] ποτὶ[1] τοῖχον ἀρηρότες,[1] εἴποτ᾽ Ὀδυσσεὺς*
*οἴκαδε νοστήσειε[1] καὶ ἄλγεα πολλὰ μογήσας.*
*κληῗσταὶ δ᾽ ἔπεσαν[1] σανίδες πυκινῶς[2] ἀραρυῖαι[1]*
*δικλίδες.[2] ἡ δὲ γυνὴ ταμίη[2] νύκτας τε καὶ ἦμαρ[1]*
*ἔνδον ἔπαντ᾽ ἐφύλασσε νόου πολυιδρείῃσιν,[2]*
*Εὐρύκλει᾽ Ὦπος θυγάτηρ Πεισηνορίδαο,*

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General Class Examination.

*τὴν τότε Τηλέμαχος προσέφη θαλαμόνδε[1] καλέσσας·*
*" μαῖ' ! ἄγε δή μοι οἶνον ἐν ἀμφιφορεῦσιν[2] ἄφυσσον[1]*
*ἥδιστον, μετὰ τὸν λαρώτατον[2] ὃν σὺ φυλάσσεις*
*κεῖνον ὀιομένη[1] τὸν κάμμορον,[2] εἴποθεν ἔλθοι*
*διογενὴς[2] 'Οδυσεὺς θάνατον καὶ κῆρας[1] ἀλύξας.[1]*
*δώδεκα δ' ἔμπλησον,[1] καὶ πώμασιν[2] ἄρσον[1] ἅπαντας.*
*ἐν δέ μοι ἄλφιτα[2] χεῦον[1] ἐυρραφέεσσι[2] δοροῖσιν·[2]*
*εἴκοσι δ' ἔστω μέτρα μυληφάτου[2] ἀλφίτου ἀκτῆς.[2]*
*αὐτὴ δ' οἴη[2] ἴσθι.[7] τὰ δ' ἀθρόα[2] πάντα τετύχθω·[1]*
*ἑσπέριος γὰρ ἐγὼν αἱρήσομαι, ὁππότε κεν δὴ*
*μήτηρ εἰς ὑπερῷ'[2] ἀναβῇ κοίτου[1] τε μέδηται.*
*εἶμι γὰρ ἐς Σπάρτην τε καὶ ἐς Πύλον ἠμαθόεντα,*
*νόστον πευσόμενος[1] πατρὸς φίλου, ἤν που ἀκούσω."[1]*

II.—1. Parse fully and accurately every word to which the figure (1) is attached, annexing the Attic form wherever it differs.

2. Derive or decompound every word to which the figure (2) is attached, noting the principles of word-building which are exemplified in some cases.

3. State clearly, and exemplify from these lines, the rules of Homeric versification, (*a*) in regard to *hiatus*, and (*b*) in regard to a short vowel followed by a consonant which—either in pronunciation only or to the eye as well as to the ear—may be doubled.

4. Restore everywhere, in accordance with metre, analogy, and tradition, any letters which, though they commenced various words in Homeric Greek, have been left out in the text printed above.

## THIRD AND FOURTH YEAR STUDENTS.

I.—Translate in a good English style the following extract from the *Timaeus* of PLATON :—

*ταύτην οὖν δὴ τότε ξύμποσαν τὴν διακόσμησιν καὶ σύνταξιν ἡ θεὸς προτέρους ὑμᾶς διακοσμήσασα κατῴκισεν, ἐκλεξαμένη τὸν τοπον ἐν ᾧ γεγένησθε, τὴν εὐκρασίαν τῶν ὡρῶν ἐν αὐτῷ κατιδοῦσα, ὅτι φρονιμωτάτους ἄνδρας οἴσοι. ἅτ' οὖν φιλοπόλεμός τε καὶ φιλόσοφος ἡ θεὸς οὖσα τὸν προσφερεστάτους αὐτῇ μέλλοντα οἴσειν τόπον ἄνδρας τοῦτον ἐκλεξαμένη πρῶτον κατῴκισεν. ᾠκεῖτε δὴ οὖν νόμοις τε τοιούτοις χρώμενοι καί ἔτι μᾶλλον εὐνομούμενοι πάσῃ τε πάντας ἀνθρώπους ὑπερβεβηκότες ἀρετῇ, καθάπερ εἰκὸς γεννήματα καὶ παιδεύματα θεῶν ὄντας. πολλὰ μὲν οὖν ὑμῶν καὶ μεγάλα ἔργα τῆς πόλεως τῇδε γεγραμμένα θαυμάζεται, πάντων μὴν ἓν ὑπερέχει μεγέθει καὶ ἀρετῇ. λέγει γὰρ τὰ γεγραμμένα ὅσην ἡ πόλις ὑμῶν ἔπαυσέ ποτε δύναμιν ὕβρει πορευομένην ἅμα ἐπὶ πᾶσαν Εὐρώπην καὶ 'Ασίαν ἔξωθεν ὁρμηθεῖσαν ἐκ τοῦ 'Ατλαντικοῦ πελάγους. τότε γαρ πορεύσιμον ἦν τὸ ἐκεῖ πέλαγος· νῆσον γὰρ πρὸ τοῦ στόματος εἶχεν, ὃ καλεῖτε ὑμεῖς "'Ηρακλέους στήλας"· ἡ δὲ νῆσος νῆσος ἅμα Λιβύης ἦν καὶ 'Ασίας μείζων, ἐξ ἧς ἐπιβατὸν ἐπὶ τὰς ἄλλας νήσιυς τοῖς τότ' ἐγίγνετο πορευομένοις, ἐκ δὲ τῶν νήσων ἐπὶ τὴν καταντικρὺ πᾶσαν ἤπειρον τὴν περὶ τὸν ἀληθινὸν ἐκεῖνον πόντον. τάδε μὲν γάρ, ὅσα ἐντὸς τοῦ στόματος οὗ λεγομεν, φαίνεται λιμὴν στενόν τινα ἔχων εἴσπλουν· ἐκεῖνο δὲ πέλαγος ὄντως, ἥ τε περιέχουσα αὐτὸ γῆ παντελῶς ὀρθότατ' ἂν λέγοιτο "ἤπειρυς."*

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General Class Examination.

*ἐν δὲ δὴ τῇ Ἀτλαντίδι νήσῳ ταύτῃ μεγάλη συνέστη καὶ θαυμαστὴ δύναμις βασιλέων κρατοῦσα ἁπάσης τῆς νήσου πολλῶν τε ἄλλων νήσων καὶ μεῶὸν τῆς ἠπείρου· πρὸς δὲ τούτοις ἔτι τῶν ἐντὸς τῇδε Λιβύης μὲν ἦρχον μέχρι πρὸς Αἴγυπτον, τῆς δὲ Εὐρώπης μέχρι Τυῤῥηνίας. αὕτη δὴ πᾶσα ξυναθροισθεῖσα εἰς ἓν ἡ δύναμις τόν τε παρ' ὑμῖν καὶ τὸν παρ' ἡμῖν καὶ τὸν ἐντὸς τοῦ στόματος πάντα τόπον μιᾷ ποτ' ἐπεχείρησεν ὁρμῇ δουλοῦσθαι. τότε οὖν ὑμῶν, ὦ Σόλων ! τῆς πόλεως ἡ δύναμις εἰς ἅπαντας ἀνθρώπους διαφανὴς ἀρετῇ τε καὶ ῥώμῃ ἐγένετο· πάντων γὰρ προστᾶσα εὐψυχίᾳ καὶ τέχναις ὅσαι κατὰ πόλεμον, τὰ μὲν τῶν Ἑλλήνων ἡγουμένη, τὰ δ' αὐτὴ μονωθεῖσα ἐξ ἀνάγκης τῶν ἄλλων ἀποστάντων, ἐπὶ τοὺς ἐσχάτους ἀφικομένη κινδύνους, κρατήσασα μὲν τῶν ἐπιόντων τρόπαια ἔστησε, τοὺς δὲ μήπω δεδουλωμένους διεκώλυσε δουλωθῆναι, τοὺς δὲ ἄλλους, ὅσοι κατοικοῦμεν ἐντὸς ὅρων Ἡρακλείων, ἀφθόνως ἅπαντας ἠλευθέρωσεν. ὑστέρῳ δέ χρόνῳ σεισμῶν ἐξαισίων καὶ κατακλυσμῶν γενομένων, μιᾶς ἡμέρας καὶ νυκτὸς χαλεπῆς, ἐπελθούσης τό τε παρ' ὑμῖν μάχιμον πᾶν ἀθρόον ἔδυ κατὰ γῆς, ἥ τε Ἀτλαντὶς νῆσος ὡσαύτως κατὰ τῆς θαλάσσης δῦσα ἠφανίσθη· διὸ καὶ νῦν ἄπορον καὶ ἀδιερύνητον γέγονε τὸ ἐκεῖ πέλαγος, πηλοῦ κάρτα βαθέος ἐμποδὼν ὄντος, ὃν ἡ νῆσος ἱζομένη παρέσχετο.*

You may add brief notes upon such phrases or statements as call for elucidation; and you may concisely comment upon the legend of Atlantis, together with its alleged relations to ancient Athens and to Egypt, as treated in the *Timaeus* and the *Critias*.

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I.—Translate, in a clear and spirited style, this passage from the *Eumenides* of AESCHYLUS :—

ΑΠΟΛΛΩΝ. *ἔξω, κελεύω, τῶνδε δωμάτων τάχος*
*χωρεῖτ', ἀπαλλάσσεσθε μαντικῶν μυχῶν·*
*μὴ καὶ λαβοῦσα πτηνὸν[1] ἀργηστὴν[1] ὄφιν,*
*χρυσηλάτου[1] θώμιγγος ἐξορμώμενον,*
*ἀνῇς ὑπ' ἄλγους μέλαν' ἀπ' ἀνθρώπων ἀφρόν,*
*ἐμοῦσα θρόμβους[1] οὓς ἀφείλκυσας φόνου.*
*οὔτοι δόμοισι τοῖσδε χρίμπτεσθαι πρέπει·*
*ἀλλ' οὗ καρανιστῆρες[1] ὀφθαλμώρυχοι[1]*
*δίκαι σφαγαί τε σπέρματός τ' ἀποφθοραὶ*
*παίδων κακοῦ τε χλοῦνις[1] ἠδ' ἀκρωνία[1]*
*λευσμοί[1] τε, χοὖ μύζουσιν[1] οἰκτισμὸν[1] πολὺν*
*ὑπὸ ῥάχιν παγέντες. ἆρ' ἀκούετε*
*οἵας ἑορτῆς ἔστ' ἀπόπτυστοι[1] θεοῖς*
*στέργηθρ' ἔχουσαι ; πᾶς δ' ὑφηγεῖται τρόπος*
*μορφῆς. λέοντος ἄντρον αἱματοῤῥόφου[1]*
*οἰκεῖν τοιαύτας εἰκός, οὐ χρηστηρίοις[1]*
*ἐν τοῖσδε πλησίοισι τρίβεσθαι μύσος.*
*χωρεῖτ' ἄνευ βοτῆρος[1] αἰπολούμεναι.[1]*
*ποίμνης τοιαύτης δ' οὔτις εὐφιλὴς θεῶν.*
ΧΟΡΟΣ. *ἄναξ Ἄπολλον ! ἀντάκουσον ἐν μέρει.*
*αὐτὸς σὺ τούτων οὐ μεταίτιος πέλει,*
*ἀλλ' εἷς τὸ πᾶν ἔπραξας ὢν παναίτιος.*

*Appendix,*
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General
Class Examination.

AII. *πῶς δή ; τοσοῦτο μῆκος ἔκτεινον λόγου.*
XO. *ἔχρησας ὥστε τὸν ξένον μητροκτονεῖν.*[1]
AII. *ἔχρησα ποινὰς τοῦ πατρὸς πέμψαι. τί μήν ;*
XO. *κἄπειθ' ὑπέστης αἵματος δέκτωρ*[1] *νέου.*
AII. *καὶ προστραπέσθαι τούσδ' ἐπέστελλον δέμους.*
XO. *καὶ τὰς προπομποὺς δῆτα τάσδε λοιδορεῖς.*
AII, *οὐ γὰρ δόμοισι τοῖσδε πρόσφορον μολεῖν.*
XO. *ἀλλ' ἔστιν ἡμῖν τοῦτο προστεταγμένον.*
AII. *τίς ἥδε τιμή ; κόμπασον γέρας καλόν.*
XO. *τοὺς μητραλοίας*[1] *ἐκ δόμων ἐλαύνομεν.*
AII. *τί γὰρ γυναικὸς ἥτις ἄνδρα νοσφίσῃ ;*[1]
XO. *οὐκ ἂν γένοιθ' ὅμαιμος*[1] *αὐθεντης φόνος.*

II.—1. Derive or decompound every word to which the figure (1) is attached, noting the principles of word-building which are exemplified, and discussing any cases which may appear doubtful.

2. Discuss concisely some of the points in dispute among recent Editors of the *Eumenides;* such as the changes of scene, the evolution of the plot, the members of the chorus and of the jury, the parts ascribed to Athena and the Propompoi, the political objects supposed to have been within the poet's view, &c.

3. If any portions of the text (here printed from recent editions) seem to you to be faulty, in construction or idiom, or else in sense and consistency with the context, you are invited to correct them.

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## LATIN.—*Examiner, Professor Nesbitt.*

### FIRST YEAR STUDENTS.

I.—Translate the following passages :—

1. Non vereor, ne quis me haec vestri adhortandi causa magnifice loqui existimet, ipsum aliter animo adfectum esse. licuit in Hispaniam provinciam meam, quo iam profectus eram, cum exercitu ire meo, ubi et fratrem consilii participem ac periculi socium haberem, et Hasdrubalem potius quam Hannibalem hostem, et minorem haud dubie molem belli : tamen, cum praetervehere navibus Galliae oram, ad famam huius hostis in terram egressus praemisso equitatu ad Rhodanum movi castra. equestri proelio, qua parte copiarum conserendi manum fortuna data est, hostem fudi; peditum agmen, quod in modum fugientium raptim agebatur, quia adsequi terra non poteram, atque regressus ad navis erat, quanta maxime potui celeritate tanto maris terrarumque circuitu in radicibus prope Alpium huic timendo hosti obvius fui. utrum, cum declinarem certamen, improvisus incidisse videor an occurrere in vestigiis eius, lacessere ac trahere ad decernendum? experiri iuvat, utrum alios repente Carthagenienses per viginti annos terra ediderit, an iidem sint, qui ad Aegatis pugnaverunt insulas, et quos ab Eryce duodevicenis denariis aestimatos emisistis; et utrum Hannibal hic sit aemulus itinerum Herculis, ut ipse fert, an vectigalis stipendiariusque et servus populi Romani a patre relictus : quem nisi Saguntinum scelus agitaret, respiceret profecto, si non patriam victam, domum certe patremque et foedera Hamilcaris scripta manu, qui iussus ab consule nostro praesidium deduxit ab Eryce; qui graves impositas victis Carthaginiensibus leges fremens maerensque accepit; qui decedere Sicilia, stipendium populo Romano

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General Class Examination.

dare pactus est. itaque vos ego, milites, non eo solum animo quo adversus alios hostes soletis pugnare velim, sed cum indignatione quadam atque ira, velout si servos videatis vestros arma repente contra vos ferentes. licuit ad Erycem clausos ultimo supplicio humanorum, fame interficere; licuit victricem classem in Africam traicere, atque intra paucos dies sine ullo certamine Carthaginem delere:—veniam dedimus precantibus, emisimus ex obsidione, pacem cum victis fecimus, tutelae deinde nostrae duximus, cum Africo bello urgerentur. pro his impertitis furiosum iuvenem sequentes oppugnatum patriam nostram veniunt.—Livy, xxi., 41.

(*a*) Explain the constructions "vestri adhortandi," "qua parte copiarum," "quem nisi . . . respiceret."

(*b*) What is the distinction between "vectigalis" and "stipendiarius?"

(*c*) Criticise the historical statements put into the mouth of Scipio.

2. Utinam, Quirites, virorum fortium atque innocentium copiam tantam haberetis, ut haec vobis deliberatio difficilis esset, quemnam potissimum tantis rebus ac tanto bello praeficiendum putaretis! Nunc vero quum sit unus Cn. Pompeius, qui non modo eorum hominum, qui nunc sunt, gloriam, sed etiam antiquitatis memoriam virtute superarit, quae res est quae cuiusquam animum in hac causa dubium facere possit? Ego enim sic existimo, in summo imperatore quattuor has res inesse oportere, scientiam rei militaris, virtutem, auctoritatem, felicitatem. Quis igitur hoc homine scientior umquam aut fuit aut esse debuit? qui e ludo atque e pueritiae disciplinis bello maximo atque acerrimis hostibus ad patris exercitum atque in militiae disciplinam profectus est, qui extrema pueritia miles in exercitu fuit summi imperatoris, ineunte adolescentia maximi ipse exercitus imperator, qui saepius cum hoste conflixit quam quisquam cum inimico concertavit, plura bella gessit quam caeteri legerunt, plures provincias confecit quam alii concupiverunt, cuius adolescentia ad scientiam rei militaris non alienis praeceptis, sed suis imperiis, non offensionibus belli, sed victoriis, non stipendiis, sed triumphis est erudita. Quod denique genus esse belli potest, in quo illum non exercuerit fortuna rei publicae? Civile, Africanum, Transalpinum, Hispaniense, mixtum ex civitatibus atque ex bellicosissimis nationibus, servile, navale bellum, varia et diversa genera et bellorum et hostium, non solum gesta ab hoc uno, sed etiam confecta, nullam rem esse declarant in usu positam militari, quae huius viri scientiam fugere possit.—Cicero—*De Imperio Cn. Pompei*, x.

(*a*) Explain, with dates, the allusions to the various incidents in Pompey's career.

(*b*) Write a note on the expression "mixtum ex civitatibus atque ex bellicosissimis nationibus."

(*c*) Give a brief sketch of the Mithridatic war so far as is necessary to illustrate the speech "de imperio Cn. Pompei."

3. Haec igitur lex in amicitia sanciatur, ut neque rogemus res turpes nec faciamus rogati. Turpis enim excusatio est et minime accipienda quum in caeteris peccatis tum si quis contra rem publicam se amici causa fecisse fateatur. Etenim eo loco, Fanni et Scaevola, locati sumus, ut nos longe prospicere oporteat futuros casus rei publicae. Deflexit iam aliquantulum de spatio curriculoque consuetudo maiorum. Ti. Gracchus regnum occupare conatus est vel regnavit is quidem paucos menses. Num quid simile populus Romanus audierat aut viderat? Hunc etiam post mortem secuti amici et propinqui quid in P. Scipione effecerint sine

lacrimis non queo dicere. Nam Carbonem quocumque modo potuimus propter recentem poenam Ti. Gracchi sustinuimus. De C. Gracchi autem tribunatu quid exspectem non libet augurari: serpit deinde res, quae proclivius ad perniciem, quum semel coepit, labitur. Videtis in tabella iam ante quanta sit facta labes, primo Gabinia lege, biennio autem post Cassia. Videre iam videor populum a senatu disiunctum, multitudinis arbitrio res maximas agi. Plures enim discent quem ad modum haec fiant quam quem ad modum his resistatur. Quorsum haec? quia sine sociis nemo quidquam tale conatur. Praecipiendum est igitur bonis ut, si in eius modi amicitias ignari casu aliquo inciderint, ne existiment ita se adligatos, ut ab amicis in magna aliqua re [publica] peccantibus non discedant: improbis autem poena statuenda est, nec vero minor iis, qui sequuti erunt alterum, quam iis, qui ipsi fuerint impietatis duces.—CICERO—*Laelius*, xii.

What were the provisions of the "leges tabellariæ" of Gabinius and Cassius respectively, and in what years were they proposed?

II.—Translate into Latin prose:—

During the minority of the latter, the Romans treated him with unexampled injustice. They first took from him Phrygia, because their attention had been directed to the importance of that state. This he never forgot. But they also endeavoured to injure him otherwise in every possible way, and to limit his powers more and more. Under these circumstances he grew up thirsting for revenge. During the Cimbrian war, the Romans had no time to keep their eyes on him. He was a man of great mind, and having now grown up to the age of manhood, he formed a profound plan of revenge. He first tried to strengthen his kingdom. Thus he carried on wars on the Bosphorus as far as the Borysthenes, and there subdued all the nations as far as the Don. His general, Neoptolemus, built fortresses there. His whole plan was directed against Rome; and had he been a contemporary of Hannibal, it is very probable that Rome would have been crushed. If he had only had another people than Asiatics, the destruction of Rome would have been possible. All his designs were excellent, but all failed in their execution, on account of the miserable character of his subjects. His plan, even at an early period, was to throw the Bastarnæ and Getæ from Dacia upon Italy, while he himself was to attack the Romans in Asia, and to expel them from those countries.

Translate into Latin prose:—

1. There are and have been philosophers who taught that God had no management at all of human affairs; there are also other philosophers, and these too great and noble, who think the whole world is governed and ruled by a divine intelligence.

2. This I will very briefly say, that no one was ever so shameless as to dare to wish from the immortal Gods so many and great things as they have bestowed upon Cn. Pompeius.

3. The consul not only sent corn to Rome, but collected it at Catana, that it might thence be furnished to the army which was to have its summer camp at Tarentum.

4. Caligula was very near removing the busts of Virgil and Livy from all the libraries.

5. Gracchus, when surrounded by the multitude of the enemy, sprung

from his horse and ordered the multitude to do the same, and animated them, saying, Let us honour by our bravery the only thing which fortune has left us. (In this sentence turn the *oratio recta* into the *oratio obliqua*).

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## FIRST YEAR STUDENTS—HONORS.

I. Translate the following passages, adding brief notes where you deem it necessary :—

1. Infandum! sistunt amnes, terraeque dehiscunt,
Et maestum illacrimat templis ebur, aeraque sudant;
Proluit insano contorquens vertice silvas
Fluviorum rex Eridanus, camposque per omnes
Cum stabulis armenta tulit; nec tempore eodem
Tristibus aut extis fibrae apparere minaces,
Aut puteis manare cruor cessavit, et altae
Per noctem resonare lupis ululantibus urbes;
Non alias coelo ceciderunt plura sereno
Fulgura, nec diri toties arsere cometae.
Ergo inter sese paribus concurrere telis
Romanas acies iterum videre Philippi,
Nec fuit indignum superis, bis sanguine nostro
Emathiam et latos Haemi pinguescere campos.
Scilicet et tempus veniet, quum finibus illis
Agricola, incurvo terram molitus aratro,
Exesa inveniet scabra robigine pila,
Aut gravibus rastris galeas pulsabit inanes,
Grandiaque effossis mirabitur ossa sepulcris.
Dî patrii, Indigetes, et Romule Vestaque mater,
Quae Tuscum Tiberim et Romana Palatia servas,
Hunc saltem everso iuvenem succurrere saeclo
Ne prohibete!

VIRGIL—*Georgics*, Lib. i.

2. Ennius, et sapiens et fortis et alter Homerus,
Ut critici dicunt, leviter curare videtur,
Quo promissa cadant et somnia Pythagorea.
Naevius in manibus non est et mentibus haeret
Paene recens? Adeo sanctum est vetus omne poëma.
Ambigitur quoties uter utro sit prior; aufert
Pacuvius docti famam senis, Accius alti,
Dicitur Afrani toga convenisse Menandro,
Plautus ad exemplar Siculi properare Epicharmi,
Vincere Caecilius gravitate, Terentius arte.
Hos ediscit et hos arto stipata theatro
Spectat Roma potens, habet hos numeratque poëtas
Ad nostrum tempus Livi scriptoris ab aevo.
Interdum vulgus rectum videt; est ubi peccat.
Si veteres ita miratur laudatque poëtas,
Ut nihil anteferat, nihil illis comparet: errat;
Si quaedam nimis antique, si pleraque dure
Dicere credit eos, ignave multa fatetur:
Et sapit et mecum facit et Iove iudicat aequo.
Non equidem insector delendaque carmina Livi
Esse reor, memini quae plagosum mihi parvo
Orbilium dictare; sed emendata videri

*Appendix, No. 8.*

**General Class Examination.**

Pulcharaque et exactis minimum distantia miror.
Inter quae verbum emicuit si forte decorum et
Si versus paullo concinnior unus et alter:
Iniuste totum ducit venditque poëma.
HORACE, Lib. ii., *Epist.* i.

Ignotum tragicae genus invenisse Camenae
Dicitur et plaustris vexisse poëmeta Thespis
Quae canerent agerentque peruncti faecibus ora.
Post hunc personae pallaeque repertor honestae
Aeschylus et modicis instravit pulpita tignis
Et docuit magnumque loqui nitique cothurno.
Successit vetus his comoedia, non sine multa
Laude; sed in vitium libertas excidit et vim
Dignam lege regi: lex est accepta, chorusque
Turpiter obticuit sublato iure nocendi.
Nil intentatum nostri liquere poëtae;
Nec minimum meruere decus, vestigia Graeca
Ausi deserere et celebrare domestica facta,
Vel qui praetextas vel qui docuere togatas.
Nec virtute foret clarisve potentius armis,
Quam lingua, Latinum, si non offenderet unum-
quemque poëtarum limae labor et mora. Vos, o
Pompilius sanguis, carmen reprehendite, quod non
Multa dies et multa litura coërcuit atque
Perfectum decies non castigavit ad unguem.
HORACE, Lib. ii., *Epist.* iii.

3. *Sy.* Ehem Démea, haud aspéxeram te: quid agitur?
*De.* Quid agátur? nostram néqueo mirarí satis
Ratiónem. *Sy.* Est hercle inépta, ne dicám dolo,
Absúrda. Piscis céteros purgá, Dromo:
Congrum ístum maxumum ín aqua sinito lúdere
Tantísper: ubi ego rédiero, exossábitur:
Prius nólo. *De.* Haecin flagítia! *Sy.* Mihi quidem *haú* placent,
Et clámo saepe. Sálsamenta haec, Stéphanio,
Fac mácerentur púlchre. *De.* Di uostrám fidem,
Vtrúm studione id síbi habet an laudí putat
Fore, sí perdiderit gnátum? Uae miseró mihi
Vidére uideor iám diem illum, quom híne egens
Profúgiet aliquo mílitatum. *Sy.* O Démea,
Istúc est sapere, nón quod ante pedés modost
Vidére, sed etiam ílla quae futúra sunt
Prospícere. *De.* Quid? istaec iám penes uos psáltriast?
*Sy.* Ellam íntus. *De.* Eho, an domíst habiturus? *Sy.* Crédo,
ut est
Deméntia. *De.* Haecin fíeri! *Sy.* Inepta lénitas
Patris ét facilitas práua. *De.* Fratris mé quidem
Pudét pigetque. *Sy.* Nímium inter uos, Démea,
(Non quía ades praesens díco hoc) pernimium ínter est.
Tu, quántus quantu's, níl nisi sapiéntia es,
Ille sómnium. *Num* síneres uero illúm tuom
Facere haéc? *De.* Sinerem illum? aut nón sex tostis mensibus
Prius ólfecissem, quám ille quicquam coéperet?
*Sy.* Vigilántiam tuam tú mihi narras? *De.* Sic siet
Modo ut núnc est, quaeso. *Sy.* Vt quisque suom uolt ésse, itast.
TERENCE—*Adelphi*, iii., 3.

*Appendix, No. 8.*

**General Class Examination.**

II.—1. Give, with dates, a sketch of the early Roman literature, so far as is necessary to illustrate the above extracts from Horace.

2. Criticise Horace's sketch of the history of the Greek stage.

3. In what writer do we first find the Epistle to the Pisos designated as "*de arte poetica liber?*" Compare the Epistle, as to its scope, with that to Augustus; give an analysis of its contents; and state and justify your opinion as to the appropriateness of the title by which it is usually known.

4. What is remarkable, looking at the object of the Epistle to the Pisos, in the introduction of precepts respecting the satyric drama? A transposition proposed by Spengel removes what had long been a stumbling-block of critics in this part of the Epistle.

5. Mention the principal sources from which Virgil borrowed in his composition of the Georgics? What evidence, internal and external, have we as to the date of the composition?

6. Enumerate, exemplify, and account for the principal metrical licences in the Roman comic poets.

## SECOND YEAR STUDENTS.

I.—Translate the following extracts :—

1. Dictator contionibus se abstinuit in actione minime popularis. ne in senatu quidem satis aequis auribus audiebatur tunc, cum hostem verbis extolleret, bienniique clades per temeritatem atque inscientiam ducum acceptas referret; magister equitum, quod contra dictum suum pugnasset, rationem diceret reddendam esse. si penes se summa imperii consiliique sit, prope diem effecturum, ut sciant homines, bono imperatore haud magni fortunam momenti esse, mentem rationemque dominari; et in tempore et sine ignominia servasse exercitum quam multa milia hostium occidisse maiorem gloriam esse. huius generis orationibus frusta habitis et consule creato M. Atilio Regulo, ne praesens de iure imperii dimicaret. pridie quam rogationis ferendae dies adesset, nocte ad exercitum abiit. luce orta cum plebis concilium esset, magis tacita invidia dictatoris favorque magistri equitum animos versabat, quam satis audebant homines ad suadendum quod vulgo placebat prodire; et favore superante auctoritas tamen rogationi deerat. unus inventus est suasor legis C. Terentius Varro, qui priore anno praetor fuerat, loco non humili solum sed etiam sordido ortus. patrem lanium fuisse ferunt, ipsum institorem mercis, filioque hoc ipso in servilia eius artis ministeria usum. Is iuvenis, ut primum ex eo genere quaestus pecunia a patre relicta animos ad spem liberalioris fortunae fecit, togaque et forum placuere, proclamando pro sordidis hominibus causisque adversus rem et famam bonorum primum in notitiam populi, deinde ad honores pervenit: quaesturaque et duabus aedilitatibus, plebeia et curuli, postremo et praetura perfunctus iam ad consulatus spem cum attolleret animos, haud parum callide auram favoris popularis ex dictatoria invidia petit, scitique plebis unus gratiam tulit. omnes eam rogationem quique Romae quique in exercitu erant, aequi atque iniqui, praeter ipsum dictatorem in contumeliam eius latam acceperunt: ipse, qua gravitate animi criminantes se ad multitudinem inimicos tulerat, eadem et populi in se saevientem iniuriam tulit, acceptisque in ipso itinere litteris senatus consulti de aequato imperio, satis fidens haudquaquam cum imperii iure artem imperandi aequatam, cumque invicto a civibus hostisbusque animo ad exercitum rediit.—LIVY, xxii., 25–26.

(*a.*) What is the construction of "bono imperatore?"

(*b.*) Mention and illustrate by examples the changes of mood which take place when a speech is transferred from the *oratio recta* to the *oratio obliqua.*

(*c.*) Explain the force of the word "toga" in the phrase "togaque et forum."

(*d.*) What is the distinction implied between "honores" and "quæstura quoque," &c.?

(*e.*) Mention some emendations which have been proposed in the last sentence.

2. Interea pavidam volitans pennata per urbem
Nuntia Fama ruit, matrisque allabitur aures
Euryali. At subitus miserae calor ossa reliquit;
Excussi manibus radii revolutaque pensa.
Evolat infelix, et femineo ululatu,
Scissa comam, muros amens atque agmina cursu
Prima petit, non illa virûm, non illa pericli
Telorumque memor; coelum dehinc questibus implet:
"Hunc ego te, Euryale, adspicio? tune ille senectae
Sera meae requies, potuisti linquere solam
Crudelis? nec te, sub tanta pericula missum,
Affari extremum miserae data copia matri?
Heu, terra ignota canibus date praeda Latinis
Alitibusque iaces! nec te in tua funera mater
Produxi, pressive oculos, aut vulnera lavi,
Veste tegens, tibi quam noctes festina diesque
Urgebam et tela curas solabar aniles.
Quo sequar, aut quae nunc artus avulsaque membra
Et funus lacerum tellus habet? Hoc mihi de te,
Nate, refers? hoc sum terraque marique secuta?
Figite me, si qua est pietas; in me omnia tela
Coniicite, o Rutuli; me primam absumite ferro;
Aut tu, magne pater divûm, miserere, tuoque
Invisum hoc detrude caput sub Tartara telo,
Quando aliter nequeo crudelem abrumpere vitam."
VIRGIL—*Aeneid*, ix, 473–497.

Write notes on the expressions "date praeda Latinis," &c., and "nec te in tua funera mater Produxi."

II.—Translate into Latin prose:—

Sylla had a general taste for literature; he was intimately acquainted with the writers of Greece; he delighted in the society of men of talent; and he was himself long and carefully engaged in recording the history of his own actions; yet no man was ever more stained with cruelty, nor was ever any more degraded by habitual and gross profligacy. Nor is this at all wonderful if we consider that the intellectual faculties, like the sensual, are gratified by exercise; and that the pleasure derived from the employment of talent is quite distinct from the application of the lessons taught by the understanding to the government of the affections and the conduct. In all men whose mental powers are at all considerable, the indulgence of them is as much an object of mere natural appetite, as the gratification of hunger and thirst is to the mere mass of mankind; and it is only because it is less common that it is regarded as conferring on the character a much superior value.

*Appendix,* *No.* 8.

**General Class Examination.**

Translate the following passages, adding brief notes where you deem it necessary :—

1. Videte, iudices, quantae res his testimoniis sint confectae. Primum certe liberatur Milo non eo consilio profectus esse, ut insidiaretur in via Clodio : quippe, si ille obvius ei futurus omnino non erat. Deinde—non enim video cur non meum quoque agam negocium—scitis, iudices, fuisse qui in hac rogatione suadenda dicerent Milonis manu caedem esse factam, consilio vero maioris alicuius. Me videlicet latronem ac sicarium abiecti homines et perditi describebant. Iacent suis testibus ii, qui Clodium negant eo die Romam, nisi de Cyro audisset, fuisse rediturum. Respiravi, liberatus sum, non vereor ne, quod ne suspicari quidem potuerim, videar id cogitasse. Nunc persequar caetera. Nam occurrit illud : Igitur ne Clodius quidem de insidiis cogitavit, quoniam fuit in Albano mansurus. Si quidem exiturus ad cædem e villa non fuisset. Video enim illum, qui dicatur de Cyri morte nunciasse, non id nunciasse, sed Milonem appropinquare. Nam quid de Cyro nunciaret, quem Clodius Roma proficiscens reliquerat morientem? Una fui, testamentum Cyri simul obsignavi cum Clodio : testamentum autem palam fecerat et illum heredem et me scripserat. Quem pridie hora tertia animam efflantum reliquisset, eum mortuum postridie hora decima denique ei nunciabatur? Age, sit ita factum: quae causa cur Romam properaret? cur in noctem se coniiceret? Quid adferebat causam festinationis? Quod heres erat? Primum erat nihil cur properato opus esset : deinde si quid esset, quid tandem erat quod ea nocte consequi posset, amitteret autem, si postridie Romam mane venisset? Atque ut illi nocturnus ad urbem adventus vitandus potius quam expetendus sic Miloni, quum insidiator esset, si illum ad urbem noctu accessurum fuit, sciebat, subsidendum atque exspectandum fuit. Noctu, insidioso et pleno latronum in loco occidisset : nemo ei neganti non credidisset, quem esse omnes salvum etiam confitentem volunt. Sustinuisset hoc crimen primum ipse ille latronum occultator et receptor locus, tum neque muta solitudo indicasset neque caeca nox ostendisset Milonem : deinde multi ab illo violati, spoliati, bonis expulsi, multi haec etiam timentes in suspicionem caderent, tota denique rea citaretur Etruria. Atque illo die certe Aricia rediens devertit Clodius ad se in Albanum. Quod ut sciret Milo illum Ariciae fuisse, suspicari tamen debuit eum, etiam si Romam illo die reverti vellet, ad villam suam, quae viam tangeret, deversurum. Cur neque ante occurrit, ne ille in villa resideret, nec eo in loco subsedit, quo ille noctu venturus esset?—Cicero, *pro Milone*, 18–19.

(*a*) Analyze the sentence " Deinde—non enim video," &c.
(*b*) Describe the Roman forms of bequest so far as is necessary to explain the transaction related in the text; and mention some modifications which they underwent in later times.

2. LV. At operam perire meam sic et te haec corde spernere
Perpeti nequeo : semul me parum pudere te piget.
Et postremo, nisi me auscultas atque hoc ut dico facis,
Tute pone te latebis facile, ne inueniát te honos :
In oculto iacebis, quom te maxume clarum uoles.
Pernoui equidem, Lesbonice, ingenium tuum ingenuom ad modum:
Scio te sponte non tuapte errasse, set amorem tibi
Pectus opscurasse : atque ipse amoris teneo omnis uias.
Itast amor, ballista ut iacitur : nil sic celerest neque uolat :
Atque is mores heminum moros et morosos ecficit.
Minus placet quod consuadetur : quod dissuadetur placet.
Quom inopiast, cupias : quando eius copiast, tum non uelis.

*Appendix, No. 8.*

General Class Examination.

[Ille qui aspellit, is compellit: ille qui consuadet, uotat.]
Insanumst malum te in hospitium deuorti ad Cupidinem.
Set te moneo hoc etiam atque etiam ut reputes quid facere
  expetas.
Si istuc conare ut [nunc] facis indicium, tuum incendes genus:
Tum igitur aquae erit tibi cupido, genus qui restinguas tuum.
Atqui si eris nanctus, proinde ut corde amantes súnt cati,
Ne scintillam quĭdem relinques, genus qui congliscat tuum.
LE. Facile inuentust: dabitur ignis, tam etsi ab inimico petas.
Set tu obiurgans me a peccatis rapis deteriorem in uiam
Meam sororem tibi dem suades sine dote. aha, non conuenit
Me qui abusus tantam rem sum patriam porro in ditiis
Esse agrumque habere, egere illam autem, ut merito me óderit.
Numquam erit aliensis grauis qui suis se concinnat leuem.
Sicut dixi faciam: nollo te iactari diutius.

PLAUTUS—*Trinummus*, iii. 2, 34–59.

(*a*) Write brief notes on the following words and phrases:—Nummorum Philippeum ad tria milia—Advorsum quam ejus me opsecravisset pater—simitu—ab re consulit—ne tis alios misereat—nequiquam—eapse—cena hac annonast sine sacris hereditas—haud ineuscheme astiterunt.

(*b*) Hic agit magis ea argumento et vorsus meliores facit.
Etiam ob stultitiam tuam te tueris? multabo mina.
Explain these lines. There is internal evidence of their spuriousness.

1. Give a sketch of the rise and history of Roman comedy, distinguishing its several species, and mentioning the most successful cultivators of each.

2. Give a brief account of the life and writings of Plautus. On what authorities is the modern recension of the text based?

3. Quote any ancient criticisms of Plautus you may remember. Account for the disparaging judgment pronounced by Horace.

4. Classify, give examples of, and account for the metrical licences found in Plautus.

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## ROMAN HISTORY.

1. What circumstances led to the organization of the Roman Provinces? Describe the organization as it originally existed, and as it was subsequently modified. What is the extent of the "Italy" to which "the provinces" are opposed? Primitive meaning of the word "provincial?"

2. Give some account of the Celtish tribes inhabiting Northern Italy, and mention the steps by which they were brought under the dominion of Rome.

3. Criticise Livy's account of Hannibal's passage of the Alps.

4. Describe briefly the battles of Trebia, Trasimene, and Cannæ, and state the results of the last within Italy and without.

5. Among the indications of the decay of the Roman Republic in the sixth century, Mommsen mentions the alarming increase of popular amusements—what is the justification of this statement?

6. Give a brief sketch of the career of Cato, the leader of the reform movement at this time.

7. Amongst the most noteworthy attempts made to counteract the spread of decay, assignations of land occupy a foremost place—enumerate the most important of them.

8. Sum up the efforts at reform.

*Appendix, No. 8.*

General Class Examination.

## THIRD YEAR STUDENTS—HONORS.

I. Translate :—

1. Nec vero ignoro varias philosophorum fuisse sententias, eorum dico, qui summum bonum, quod ultimum appello, in animo ponerent. Quas quamquam vitiose quidam secuti sunt, tamen non modo iis tribus, qui virtutem a summo bono segregaverunt, quum aut voluptatem aut vacuitatem doloris aut prima naturae in summis bonis ponerent, sed etiam alteris tribus, qui mancam fore putaverunt sine aliqua accessione virtutem, ob eamque rem trium earum rerum, quas supra dixi, singuli singulas addiderunt, his tamen omnibus eos antepono, cuicuimodi sunt, qui summum bonum in animo atque in virtute posuerunt. Sed sunt tamen perabsurdi et ii, qui cum scientia vivere ultimum bonorum, et qui nullam rerum differentiam esse dixerunt, atque ita sapientem beatum fore, nihil aliud alii momento ullo anteponentem, ut quidam Academici constituisse dicuntur, extremum bonorum et summum munus esse sapientis, obsistere visis adsensusque suos firme sustinere. His singulis copoise responderi solet, sed quae perspicua sunt, longa esse non debent. Quid autem apertius quam, si selectio nulla sit ab iis rebus, quae contra naturam, sint, earum rerum, quae sint secundum naturam, tollatur omnis ea, quae quaeratur laudeturque, prudentia? Circumscriptis igitur iis sententiis, quas posui, et iis, si quae similes earum sunt, relinquitur ut summum bonum sit vivere scientiam adhibentem earum rerum, quae natura eveniant, seligentem quae secundum naturam et quae contra naturam sint reiicientem, id est, convenienter congruenterque naturae vivere. Sed in caeteris artibus quum dicitur *artificiose*, posterum quodam modo et consequens putandum est, quod illi *ἐπιγεννηματικὸν* appellant: quum autem in quo *sapienter* dicimus, id a primo rectissime dicitur. Quidquid enim a sapiente proficiscitur, id continuo debet expletum esse omnibus suis partibus: in eo enim positum est id, quod dicimus esse expetendum. Nam ut peccatum est patriam prodere, parentes violare, fana depeculari, quae sunt in effectu, sic timere, sic maerere, sic in lubidine esse peccatum est etiam sine effectu. Verum ut haec non in posteris et in consequentibus, sed in primis continuo peccata sunt, sic ea, quae proficiscuntur a virtute, susceptione prima, non perfectione recta sunt iudicanda.—CICERO—*De Finibus*, lib. iii., cap. 9.

2. Postea tuus ille Poenulus—scis enim Citieos, clientes tuos, e Phoenica profectos—homo igitur acutus, causam non obtinens, repugnante natura, verba versare coepit, et primum rebus iis, quas nos bonas dicimus, concessit, ut haberentur aptae [*et*] habiles et ad naturam accommodatae, faterique coepit sapienti, hoc est, summe beato, commodius tamen esse, si ea quoque habeat, quae bona non audet appellare, naturae accommodata esse concedit, negatque Platonem, si sapiens non sit, eadem esse in causa qua tyrannum Dionysium: huic mori optimum esse propter desperationem sapientiae, illi propter spem vivere: peccata autem partim esse tolerabilia, partim nullo modo, propterea quod ali peccata plures, alia pauciores quasi numeros officii praeterirent: iam insipientes alios ita esse, ut nullo modo ad sapientiam possent pervenire, alios, qui possent, si id egissent, sapientiam consequi. Hic loquebatur aliter atque omnes, sentiebat idem quod caeteri. Nec vero minoris aestimanda ducebat ea, quae ipse bona negaret esse, quam illi, qui ea bona esse dicebant. Quid igitur voluit sibi, qui illa mutaverit? Saltem aliquid de pondere detraxisset, et paullo minoris aestimavisset ea quam Peripatetici, ut sentire quoque aliud, non solum dicere videretur. Quid? de ipsa beata vita, ad quam omnia referuntur, quae dicitis? Negatis

Appendix, No. 8.

General Class Examination.

eam esse, quae expleta sit iis rebus omnibus, quas natura desideret, totamque eam in una virtute ponitis, quumque omnis controversia aut de re soleat aut de nomine esse, utraque earum nascitur, si aut res ignoratur aut erratur in nomine. Quorum si neutrum est, opera danda est ut verbis utamur quam usitatissimis et quam maxime aptis, id est, rem declarantibus. Num igitur dubium est quin, si in re ipsa nihil peccatur a superioribus, verbis illi commodius utantur? Videamus igitur sententias eorum, tum ad verba redeamus.—CICERO—*De Finibus*, lib. iv., cap. 20.

3. Ista similia non sunt, Cato : in quibus quamvis multum processeris, tamen illud in eadem causa est, a quo abesse velis, donec evaseris. Nec enim ille respirat, ante quam emersit, et catuli aeque caeci, prius quam dispexerunt, ac si ita futuri semper essent. Illa sunt similia : Hebes acies est cuipiam oculorum, corpore alius languescit : hi curatione adhibita levantur in dies : valet alter plus cotidie, alter videt. His similes sunt omnes, qui virtuti student : levantur vitiis, levantur erroribus. Nisi forte censes Ti. Gracchum patrem [*non*] beatiorem fuisse quam filium, quum alter stabilire rem publicam studuerit, alter evertere. Nec tamen ille erat sapiens—quis enim hoc aut quando aut ubi aut unde?—sed quia studebat laudi et dignitati, multum in virtute processerat. Conferam avum tuum, Drusum, cum C. Graccho eius fere aequali. Quae hic rei publicae vulnera imponebat, eadem ille sanabat.—CICERO—*De Finibus*, lib. iv., cap. 24.

1. (*a.*) Mention the three philosophers of whom it is said "virtutem a bono segregaverunt," and the second group who are described as considering virtue incomplete "sine aliqua accessione."

(*b.*) By whom was the supreme good placed in knowledge : and who denied all difference between things?

(*c.*) Give the Greek equivalents of the expressions "visis obsistere" and "adsensus sustinere;" and of the Stoical definition of the Supreme Good. Who was the founder of the sect which inculcated the former precepts?

(*d.*) Explain the use of the word "prudentia" in the first extract. What is required to make the sentence in which it is found grammatically correct?

(*e.*) Show from the Stoical point of view the propriety of the expression "in *cæteris* artibus;" and explain the distinction drawn between virtue and the arts in general.

2. (*a.*) Explain the allusions in "ille Pœnulus" and "clientes tuos."

(*b.*) The view of suicide here presented is inconsistent with the Stoical doctrine on the subject as stated in the preceding book?

(*c.*) "A superioribus"—who are especially referred to? Point out the difference between the Peripatetics and Stoics in the definition of the Good.

3. (*a.*) What is the point which the similes in the text were used to illustrate?

(*b.*) Explain the historical allusions, and trace the relationship between Cato and Drusus.

II.—Translate into Latin Prose :—

What reason can be assigned for the fact, that while the wishes of every individual are by the very guidance and impulse of nature directed towards what is good, so small a portion of mankind attain to what is

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really such? That such is the case is evident: for this desire of good is plainly natural: now, that which is natural must exist in the whole race: it follows, then, that none, however perverted his mind, can fail to direct his every design and project to that which is good, or which he considers to be so. Now, there are four things which I would notice as the causes by which most men are prevented from the attainment of what is really great and good. In some it is error of judgment, and that in two ways: either they are shackled by false views, and so, passing over what is really good, they embrace some delusive and profitless object; or having decided truly enough what ought to be the object of their pursuit, they set about attaining it in other ways but the right. In another class it is a want of perseverance and constancy: having at first set themselves to what is good, and entered on the path which leads to their object, they afterwards take another direction, either frightened by the difficulties which arise, or drawn aside by their own levity, and so either resign themselves to inactivity, or at any rate leave off the urgent pursuit of that which they had originally set before them. Others, lastly, though they form a true judgment, and persevere in the plan they have laid down, are hindered by the deficiency of their powers from attaining that which they desire.

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Translate, adding brief notes where you deem it necessary :—

I.—HORACE, Odes III., V., 13–40.

Hoc caverat mens provida Reguli
Dissentientis conditionibus
  Foedis et exemplo trahentis
    Perniciem veniens in aevum.

Si non periret immiserabilis
  Captiva pubes. "Signa ego Punicis
  Affixa delubris et arma
    Militibus sine caede," dixit,

"Direpta vidi; vidi ego civium
Retorta tergo brachia libero
  Portasque non clausas, et arva
    Marte coli populata nostro.

"Auro repensus scilicet acrior
Miles redibit?—Flagitio additis,
  Damnum: neque amissos colores
    Lana refert medicata fuco,

"Nec vera virtus, cum semel excidit,
Curat reponi deterioribus.
  Si pugnat extricata densis
    Cerva plagis, erit ille fortis,

"Qui perfidis se credidit hostibus,
Et Marte Poenos proteret altero,
  Qui lora restrictis lacertis
    Sensit iners timuitque mortem.

"Hic, unde vitam sumeret inscius,
Pacem duello miscuit.—O pudor!
  O magna Carthago, probrosis
    Altior Italiae ruinis!"

II.—JUVENAL.

1. Cur tamen hoc potius libeat decurrere campo,
Per quem magnus equos Auruncae flexit alumnus,
Si vacat et placidi rationem admittis, edam.

2. Quidquid agunt homines, votum, timor, ira, voluptas,
Gaudia, discursus, nostri est farrago libelli.
Et quando uberior vitiorum copia? quando
Hos animos? neque enim loculis comitantibus itur
Ad casum tabulae, posita sed luditur arca.
Proelia quanta illic dispensatore videbis
Armigero! simplexne furor sestertia centum
Perdere et horrenti tunicam non reddere servo?
Quis totidem erexit villas? quis fercula septem
Secreto coenavit avus? nunc sportula primo
Limine parva sedet, turbae rapienda togatae.
Ille tamen faciem prius inspicit et trepidat, ne
Suppositus venias ac false nomine poscas.
Agnitus accipies; iubet a praecone vocari
Ipsos Troiugenas; nam vexant limen et ipsi
Nobiscum. Da Praetori, da deinde Tribuno!
Sed libertinus prior est. Prior, inquit, ego adsum.
Cur timeam dubitemve locum defendere, quamvis
Natus ad Euphratem, molles quod in aure fenestrae
Arguerint, licet ipse negem? sed quinque tabernae
Quadringenta parant. Quid confert purpura maius
Optandum, si Laurenti custodit in agro
Conductas Corvinus oves? ego possideo plus
Pallante et Licinis.

3. Accipe, quae contra valeat solatia ferre,
Et qui nec Cynicos, nec Stoica dogmata legit
A Cynicis tunica distantia, non Epicurum
Suspicit exigui laetum plantaribus horti.
Curentur dubii medicis maioribus aegri.:
Tu venam vel discipulo committe Philippi.
Si nullum in terris tam destabile factum
Ostendis, taceo, nec pugnis caedere pectus
Te veto, nec plana faciem contundere palma,
Quandoquidem accepto claudenda est ianua damno,
Et maiore domus gemitu, maiore tumultu
Planguntur nummi, quam funera. Nemo delorem
Fingit, in occasu vestem diducere summam
Contentus, vexare oculos humore coacto:
Ploratur lacrimis amissa pecunia veris.
Sed si cuncta vides simili fora plena querela,
Si decies lectis diversa parte tabellis,
Vana supervacui dicunt chirographa ligni,
Arguit ipsorum quos litera gemmaque princeps
Sardonychus, loculis quae custoditur eburnis:
Te nunc, delicias, extra communia censes
Ponendum, quia tu gallinae filius albae,
Nos vilis populus, nati infelicibus ovis?
Rem pateris modicam et mediocri bile ferendam,
Si flectas oculos maiora ad crimina.

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General Class Examination.

1. A certain unity of thought and purpose seems to run through the first six odes of the third book of Horace's Odes?

2. Give the scheme of the Alcaic stanza as used by Horace, and point out, *with examples*, the varieties which it admits.

3. Give a sketch of the origin and history of Roman satire.

III.—Translate into Latin Elegiac Verse :—

Here rests his head upon the lap of Earth,
  A youth to fortune and to fame unknown;
Fair Science frowned not on his humble birth,
  And Melancholy marked him for her own.

Large was his bounty, and his soul sincere;
  Heaven did a recompense as largely send:
He gave to misery all he had, a tear;
  He gained from Heaven ('twas all he wished) a friend.

No farther seek his merits to disclose,
  Or draw his frailties from their dread abode,
(There they alike in trembling hope repose),
  The bosom of his Father and his God.

## MODERN LANGUAGES.—*Examiner*, *Dr. Frädersdorff.*

### FIRST YEAR STUDENTS.

Translate into English :—

Quelques soldats, désespérés de tomber entre les mains des Moscovites, se précipitèrent dans le Borysthène; deux officiers du régiment de ce brave Troutfètre s'entretuèrent; le reste fut fait esclave. Ils défilèrent tous en présence du prince Menzikoff, mettant les armes à ses pieds, comme trente mille Moscovites avaient fait neuf ans auparavant devant le roi de Suède à Narva. Mais, au lieu que le roi avait alors renvoyé tous ces prisonniers moscovites, qu'il ne craignait pas, le czar retint les Suédois pris à Pultava.

Ces malheureux furent dispersés depuis dans les états du czar, mais particulièrement en Sibérie, vaste province de la grande Tartarie, qui, du côté de l'orient, s'étend jusqu'aux frontières de l'empire chinois. Dans ce pays barbare où l'usage du pain n'était pas même connu, les Suédois, devenus ingénieux par le besoin, y exercèrent les métiers et les arts dont ils pouvaient avoir quelque teinture. Alors toutes les distinctions que la fortune met entre les hommes furent bannies: l'officier qui ne put exercer aucun métier fut réduit à fendre et à porter le bois du soldat devenu tailleur, drapier, menuisier, ou maçon, ou orfèvre, et qui gagnait de quoi subsister. Quelques officiers devinrent peintres, d'autres architectes: il y en eut qui enseignèrent les langues, les mathématiques; ils y établirent même des écoles publiques, qui avec le temps devinrent si utiles et si connues qu'on y envoyait des enfants de Moscou.

Le comte Piper, premier ministre du roi de Suède, fut longtemps enfermé à Pétersbourg. Le czar était persuadé, comme le reste de l'Europe, que ce ministre avait vendu son maître au duc de Marlborough, et avait attiré sur la Moscovie les armes de la Suède, qui auraient pu pacifier l'Europe: il lui rendit sa captivité plus dure. Ce ministre

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mourut quelques années après en Moscovie, peu secouru par sa famille, qui vivait à Stockholm dans l'opulence, et plaint inutilement par son roi, qui ne voulut jamais s'abaisser à offrir pour son ministre une rançon qu'il craignait que le czar n'acceptât pas; car il n'y eut jamais de cartel d'échange entre Charles et le czar.

L'empereur moscovite, pénétré d'une joie qu'il ne se mettait pas en peine de dissimuler, recevait sur le champ de bataille les prisonniers qu'on lui amenait en foule, et demandait à tout moment: "Où est donc mon frère Charles?"

Il fit aux généraux suédois l'honneur de les inviter à sa table. Entre autres questions qu'il leur fit, il demanda au général Renschild à combien les troupes du roi son maître pouvaient monter avant la bataille. Renschild répondit que le roi seul en avait la liste, qu'il ne communiquait à personne; mais que pour lui il pensait que le tout pouvait aller à environ trente mille hommes; savoir dix-huit mille Suédois, et le reste Cosaques. Le czar parut surpris, et demanda comment ils avaient pu hasarder de pénétrer dans un pays si reculé, et d'assiéger Pultava avec ce peu de monde. "Nous n'avons pas toujours été consultés, reprit le général suédois; mais, comme fidèles serviteurs, nous avons obéi aux ordres de notre maître, sans jamais y contredire."

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Translate into German or French:—

When we had got within half a league of Moulins, at a little opening in the road leaping to a thicket, I discovered poor Maria sitting under a poplar. She was sitting with her elbows in her lap, and her head leaning on one side within her hand, a small brook ran at the foot of the tree.

I bade the postilion go on with the chaise to Moulins, and La Fleur to bespeak my supper, and that I would walk after him.

She was dressed in white, and much as my friend described her, except that her hair hung loose, which before was twisted in a silken net. She had, superadded likewise to her jacket, a pale green ribbon which fell across her shoulder to the waist; at the end of which hung her pipe. Her goat had been as faithless as her lover; and she had got a little dog in lieu of him, which she had kept tied by a string to her girdle; as I looked at her dog, she drew him towards her with a string—"Thou shalt not leave me, Sylvio," she said. I looked in Maria's eyes, and saw she was thinking more of her father than of her lover or her little goat; for as she uttered them, the tears trickled down her cheeks.

Translate into English:—

## Der Strauß.

„Jetzt will ich fliegen!" rief der gigantiſche Strauß, und das ganze Volk der Vögel ſtand in ernſter Erwartung um ihn verſammelt. „Jetzt will ich fliegen!" rief er nochmals, breitete die gewaltigen Fittige weit aus und ſchoß, gleich einem Schiffe mit aufgeſpannten Segeln, auf dem Boden dahin, ohne ihn mit einem Tritte zu verlieren.

Seht da ein poetiſches Bild jener unpoetiſchen Köpfe, die in den erſten Zeilen ihrer ungeheuren Oden mit ſtelzen Schwingen prahlen, ſich über Wolken und Sterne zu erheben drohen und dem Staube doch immer getreu bleiben.

Leſſing.

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General Class Examination.

### Der Lohn der zukünftigen Welt.

Richte nicht den Weg deines Lebens; alle ſeine Fußſteige ſind gut, ob du gleich das Ziel eines jeden nicht überſieheſt. Wäge auch nicht die Vorſchriften des Geſetzes, das du etwa ſageſt: dies Gebot iſt groß, darum will ich's halten, denn ſein Lohn wird groß ſein. Gott hat dem Menſchen nicht offenbaret, welches der Lohn eines jeden Werks ſein werde.

Ein König wollte einen Garten pflanzen und lud die Arbeiter dazu ohne Bedingung ein; er ließ einem jeden ſeine Arbeit frei und fragte am Abende nur, woran er gearbeitet habe. Jeder zeigte, was er gethan dieſer den Feigenbaum, jener den Palmbaum, den er gepflanzet. Der Hausvater gab einem jeden den Lohn nach ſeiner Arbeit, und ſo war ſein Garten mit mancherlei Bäumen bepflanzt. Hätten die Arbeiter gewußt, welcher Baum unter allen den größten Lohn brächte, ſo wäre des Hausvaters Abſicht nicht erreicht worden, der Garten wäre nicht mit mancherlei Bäumen bepflanzet.

Ein Weiſer ward gefragt, warum ihn Gott alſo geſegnet habe in ſeinem Leben. „Weil ich die kleinſte Pflicht, wie die größeſte that, antwortete er, darum hat mich Gott alſo geſegnet."

Herder.

## SECOND AND THIRD YEAR STUDENTS.

⁂ *Third Year* Students are expected to engage upon the papers in *any two* of the following languages (*French, German, Italian*). To Second Year Students the *French* or *German* portions only are assigned.

Translate into English :—

Bossuet avait jeté un abîme insondable entre Dieu et la création, et c'est sur les sommets inaccessibles de l'infini qu'il avait trouvé le sublime dont il foudroie toutes les grandeurs de la terre. Fénelon n'est pas moins sublime quand il réconcilie ces deux extrêmes dans une éternelle communion. Cet Etre, qui est infiniment, voit, en montant jusqu'à l'infini, tous les degrés auxquels il peut communiquer l'être. Dans chaque objet particulier, Fénelon observe sa correspondance à un certain degré d'être qui est un Dieu, et dont cet individu est lui-même une communication.

Bossuet est surtout théologien. Il voit avec douleur qu'on soit arrivé à ces temps de tentation, où l'éloquence éblouit les simples, la dialectique leur tend des lacets, une métaphysique outrée jette les esprits dans des pays inconnus. Fénelon, quoique profondément convaincu de la foi dont il est le ministre quoique effrayé aussi d'un bruit sourd d'impiété qui vient frapper ses oreilles, s'engage volontiers dans des routes nouvelles. Il honore assez la religion pour ne craindre pour elle le contact d'aucune vérité. Son traité De l'existence de Dieu, qu'on peut rapprocher avec intérêt du traité sur la Connaissance de Dieu et de soi-même, part de Descartes, comme Bossuet, mais il s'élance au delà de Malebranche et de Platon. Ajoutez que la démonstration métaphysique y repose sur une large et magnifique base: la première partie du traité est un tableau brillant de la nature, heureuse imitation de celui de Cicéron, dans la Nature des dieux. Par un attribut distinctif de sa philosophie, Fénelon, dans cet admirable ouvrage, joint sans cesse le sentiment à la pensée, et ne réussit pas moins à émouvoir qu'à convaincre.

C'est par le cœur surtout que diffèrent les deux nobles émules. La sensibilité de Bossuet disparaît dans sa grandeur: l'amour est l'âme de Fénelon, le principe de toute as vie, le foyer de son génie. Celui qui disait: Il serait à désirer que tous les bons amis s'entendissent ensemble pour mourir le même jour. Et encore: Il en coûte beaucoup d'être sensible à l'amitié, mais ceux qui ont cette sensibilité aiment mieux souffrir

que d'être insensibles, celui-là devait porter dans la religion la tendresse de saint François de Sales. Ses Lettres spirituelles produisent dans l'âme une impression de calme et de bonheur qui charme et persuade, avant même d'avoir convaincu. "Soyez avec Dieu, écrit-il, non en conversation guindée comme avec les gens qu'on voit par cérémonie, mais comme avec un bon ami qui ne vous gêne en rien et que vous ne gênez point aussi. On se voit, on se parle, on s'ecoute, on ne se dit rien, on est content d'être ensemble sans se rien dire; les deux cœurs se reposent et se voient l'un dans l'autre, et ils n'en font qu'un seul. On n'est jamais de la sorte qu'imparfaitement avec les meilleurs amis; mais c'est ainsi qu'on est parfaitement avec Dieu."

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Translate into English:—

*Nérine.* Le roi de ce refus eût eu lieu de se plaindre,
Madame; vous devez un moment vous contraindre;
Et, quoiqu'en l'écoutant vous ne puissiez douter
Que c'est son amour seul qu'il vous faut écouter,
Votre hymen, dont enfin l'heureux moment s'avance,
Semble vous obliger à cette complaisance.
Il vous perd, et la plainte a de quoi soulager.
*Ariane.* Je sais qu'avec le roi j'ai tout à ménager;
J'aurais tort de l'aigrir. L'asile qu'il nous prête
Contre la voilence assure ma retraite.
D'ailleurs, tant de respect accompagne ses vœux,
Que souvent j'ai regret qu'il ne puisse être heureux.
Mais quand d'un premier feu l'ame tout occupée
Ne trouve de douceurs qu'aux traits qui l'ont frappée,
C'est un sujet d'ennui qui ne peut s'exprimer,
Qu'un amant qu'on néglige, et qui parle d'aimer.
Pour m'en rendre la peine à souffrir plus aisée,
Tandis que le roi vient, parle-moi de Thésée:
Peins-moi bien quel honneur je reçois de sa foi;
Peins-moi bien tout l'amour dont il brûle pour moi;
Offres-en à mes yeux la plus sensible image.
*Nérine.* Je crois que de son cœur vous avez tout l'homage;
Mais au point que de lui je vois vos sens charmés,
C'est beaucoup s'il vous aime autant que vous l'aimez.
*Ariane.* Et puis-je trop l'aimer, quand, tout brillant de gloire,
Mille fameux exploits l'offrent à ma mémoire?
De cent monstres par lui l'univers dégagé
Se voit d'un mauvais sang heureusement purgé.
Combien, ainsi qu'Hercule, a-t-il pris de victimes!
Combien vengé de morts! combien puni de crimes!
Procruste et Cercyon, la terreur des humains,
N'ont-ils pas succombé sous ses vaillantes mains?
Ce n'est point le vanter que ce qu'on m'entend dire;
Tout le monde le sait, tout le monde l'admire.

---

Translate into French or German:—

When Malcolm and Donaldbane, the two sons of the good king, saw their father slain in this strange manner within Macbeth's castle, they became afraid that they might be put to death likewise, and fled away out of Scotland; for, notwithstanding all the excuses which he could make, they still believed that Macbeth had killed their father. Donaldbane fled into some distant island, but Malcolm, the eldest son of Duncan,

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General Class Examination.

went to the court of England, where he begged for assistance from the English king, to place him on the throne of Scotland as his father's successor. In the meantime, Macbeth took possession of the kingdom of Scotland, and thus all his wicked wishes seemed to be fulfilled. But he was not happy. He began to reflect how wicked he had been in killing his friend and benefactor, and how some other person, as ambitious as he was himself, might do the same thing to him. He remembered, too, that the old woman had said, that the children of Banquo should succeed to the throne after his death, and therefore he concluded that Banquo might be tempted to conspire against him, as he had himself done against King Duncan. The wicked always think that other people are as bad as themselves.

In order to prevent this supposed danger, he hired ruffians to watch in a wood, where Banquo and his son Fleance sometimes used to walk in the evening, with instructions to attack them, and kill both father and son. The villains did as they were ordered by Macbeth; but while they were killing Banquo, the boy Fleance made his escape from their wicked hands, and fled into Wales.

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Translate into English :—

## Sommerleben.

Schon der Sommer allein erhöbe! Welche Jahreszeit! Wahrlich, ich weiß oft nicht, bleibe ich in der Stadt, oder gehe ich auf's Feld, ſo ſehr iſt's einerlei und hübſch. Geht man zum Thor hinaus, ſo erfreuen uns die Bettler, die jetzt nicht frieren, und die Poſtreiter, die mit vieler Luſt die ganze Nacht zu Pferde ſitzen können, und die Schläfer ſchlafen im Freien. Man braucht kein dumpfes Haus; jede Stunde macht man zur Stube und hat dabei gar meine guten, emſigen Bienen vor ſich und die prächtigſten Zweifalter. Wegen des Jagdverbotes wird nichts geſchoſſen, und alles Leben in Büſchen und Furchen und auf Aeſten kann ſich ſo recht ſicher ergötzen. Ueberall kommen Reiſende auf allen Wegen daher, haben die Wagen meiſt zurückgeſchlagen; den Pferden ſtecken Zweige im Sattel, und den Fuhrleuten Roſen im Mund. Die Schatten der Wolken laufen, die Vögel fliegen da zwiſchen auf und ab, Handwerksburſchen wandern leicht mit ihren Bündeln und brauchen keine Arbeit. Sogar im Regenwetter ſteht man ſehr gern draußen und riecht die Erquickung, und es ſchadet den Viehhirten die Näſſe weiter nicht. Und iſt's Nacht, ſo ſitzt man nur in einem kühlern Schatten, von wo aus man den Tag deutlich ſieht am nördlichen Horizonte und an den ſüßen Himmelsſternen. Wohin ich nur blicke, ſo finde ich mein liebes Blau: am Flachs in der Blüthe, an den Kornblumen und am göttlichen, unendlichen Himmel, in den ich gleich hineinſpringen möchte wie in eine Fluth.

Kommt man nun wieder nach Hauſe, ſo findet ſich in der That friſche Wonne. Die Gaſſe iſt eine wahre Kinderſtube. Sogar Abends nach dem Eſſen werden die Kleinen wieder in's Freie gelaſſen und nicht, wie im Winter, unter die Bettdecke gejagt. Man iſſet am Tage und weiß kaum, wo der Leuchter ſteht. Im Schlafzimmer ſind die Fenſter Tag und Nacht offen, auch die meiſten Thüren ohne Schaden. Die älteſten Weiber ſtehen ohne Froſt am offenen Fenſter und nähen. Ueberall liegen Blumen, neben dem Tintenfaß, auf den Akten, und den Seſſions- und Ladentiſchen. Die Kinder lärmen ſehr, und man hört das Rollen der Kegelbahnen. Die halbe Nacht geht man auf den Gaſſen auf und ab und ſpricht laut und ſieht die Sterne am hohen Himmel ſchießen.]

Jean Paul Richter.

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General Class Examination.

### Andacht.

Wenn das Abendroth die Haine
Mit den Abſchiedsflammen küßt,
Wenn im prächt'gen Morgenſcheine
Lerchenklang die Sonne grüßt:

O, dann werf' ich Jubellieder
In's Lobpreiſen der Natur;
Echo ſpricht die Töne wieder,
Alles preiſ't den Ew'gen nur!

Mit den Quellen geht mein Grüßen;
Und das taube Herz in mir
Hat dem Gott erwachen müſſen,
Der uns ſchirmet für und für.

Meereswogen laut erklingen,
In den Wäldern wohnt manch Schall:
Und wir ſollten nicht beſingen,
Da die Freude überall?

Tieck.

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## FIRST, SECOND, AND THIRD YEAR STUDENTS.

*** *First* Year Students are to do the *questions* 1–4 inclusively, of *either* paper (*German* or *French*). *Second* Year Students the *whole* of *one* paper. *Third* Year Students the whole of *either* paper, and to engage besides *partly* on the *other* paper (*German* or *French*).

### GERMAN.

1. Give some *idiomatic locutions*, in which the grammatical *ancient* form of adjectives has been retained. What was the *characteristic* termination of the ancient *adjective form* in the *oblique cases?* Exemplify.

2. What kind of *derivative nouns* are, after Dr. Becker's theory, those formed by the addition of a final *t* to the *radical* of verbs of the *ancient form?* What is their *gender?* Which are the exceptions?

3. Give (according to the same grammarian) a classification of verbs of the *ancient form.*

4. Write out some examples *in German* involving the rules on—

(*a.*) The *predicative combination.*

(*β.*) The *objective combination* (according to Dr. Becker's system).

5. State the general rules on "Wort-Bildung," and give the corresponding substantive terminations in *English*, besides defining the *gender* according to any given termination.

6. Write out six German *idiomatic locutions* in which any six *verbs of mood* may occur, such as ſollen, mögen, müſſen, &c.

### FRENCH.

1. Give some instances on the French "*Correspondance des Temps,*" using the following *formula* of the *Gramm. des Grammaires:* "*On m'assure que vous partez aujourd'hui pour Paris.*" Add other *subordinate clauses* in any *tense* and *mood* which may be employed after the *pres. indic.* "*On m'assure;*" *e.g.*, *fut*:—"*Que vous partirez demain,*" &c., &c.

2. Remark on the *comparative* implying *equality* (= *comparatif d'égalité*). Is the *negative particle* "*ne*" employed when a *degree of equality* exists? Correct, if necessary, the following sentence given in the

*Appendix*, No. 8.

General Class Examination.

*Gram. des Grammaires* :—"*Je fis, ou, je ne fis pas autant de réponses victorieuses qu'on me fit d'objections.*"—BEAUZEE *Encyl.*

Add *other instances* from the *Gram. des Gram.* that you may remember.

3. Remark (relative to the same subject of the *comparative degree*) on the following sentences :—

(*a.*) On se voit d'un *autre* oeil qu'on *ne* voit son prochain.
LA FONTAINE.

(*b.*) Il est fait *autrement* que vous *ne* croyez.
*L'Académie.*

4. Compare the following sentence with that in question 3 (*b.*) :—"*Vous ne pensez pas autrement que vous dites.*" Account for the negation "*ne*" being left out here after "*autrement*" in the subordinate clause.

5. Show how the word "*huile*" (*oil*) became gradually corrupted from (Lat.) "*oleum;*" the *neuter* termination "*um*" being retrenched in French words.

6. Distinguish between "*imposer*" and "*en imposer*" by translating (after *Laveaux*) : "*L'air noble et simple de l'innocence impose. L'air composé d'un hypocrite* EN IMPOSE.

⁂ Taking Laveaux for our guide, should *César* (being penetrated with admiration for Brutus) say : "*Sa fermeté m'impose*" or *Sa fermenté* M'EN *impose ?*"

7. State the general rules relating to the *suppression* or *employment* of PAS and POINT in a *negative clause.*

Translate accurately :—

(*a.*) *It is better not to say a word than to speak nonsense.*
(*b.*) *You do not say a word but that is applauded.*
(*c.*) *He does not say anything but what is to the purpose.*

Use in the two *co-ordinate clauses* (introduced by "*but,*" &c.) the *relative construction* with "*que,*" &c.

(*d.*) *Rampale et Ménardiere are no longer* (=*plus*) *much* (=*guére*) *read.—Boileau Art. Poët.*

Render this sentence by the *active voice* with pronoun "*on.*'

⁂ Other questions *on grammar*, especially *irregular verbs*, &c., &c., and their government, have formed a previous subject of *class-examination.*

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## MATHEMATICS.—*Examiner, Professor Purser.*

### FIRST YEAR STUDENTS.

### ALGEBRA, &C.

1. Calculate by actual multiplication the product of the four factors $a+b+c,\ b+c-a,\ c+a-b,\ a+b-c$.

2. Prove algebraically that if $\frac{x}{y}=\frac{a}{b}\ \frac{x-y}{x+y}=\frac{a-b}{a+b}$.

3. Solve the equations—

$$x+\frac{6}{x}=7 \qquad \begin{cases} 7x+5y=-1 \\ 5x+3y=+1 \end{cases}$$

$$\sqrt{x-a}+\sqrt{x-b}=\sqrt{a-b}.$$

*Appendix, No. 8.*

General Class Examination.

4. The sum of the squares of two numbers is 58, and their difference is 4, required the numbers.

5. Find the expressions for the sum of the series—

$$1, \frac{2}{3}, \frac{4}{9}, \frac{8}{27}, \text{ \&c.} \qquad 1^\circ \text{ to } 10, \ 2^\circ \text{ to } 100 \text{ terms},$$

and show that, as the number of terms is increased indefinitely, the sum of the series tends to the limit 3.

6. The sum of the sides of a right-angled triangle is 221 feet, and the altitude 60 feet, calculate the sides.

7. Given $\begin{cases} \dfrac{x^3}{y^2} = xy - 31 \\ \dfrac{y^3}{x^2} = 64 - xy \end{cases}$ find $x$ and $y$.

8. Eliminate $x$ and $y$ from the equations—

$$\left.\begin{array}{l} x + y = a \\ x^2 + y^2 = b^2 \\ x^3 + y^3 = c^3 \end{array}\right\} \text{ exhibiting the result in a rational form.}$$

9. Assuming the truth of the exponential series for the expansion of $e^x$, investigate the series for the expansion of $\log_e(1+x)$.

Show that

$$\log_e(y) = \frac{1}{n}\left\{ (y^n - 1) - \frac{1}{2}(y^n - 1)^2 + \frac{1}{3}(y^n - 1)^3 -, \text{ \&c. } \right\}$$

10. Write down the series for the expansion of $(1+x)^{\frac{1}{3}}$. Apply this series to calculate the cube root of 70 to three places of decimals.

11. State and prove the different tests with which you are acquainted for determining the convergency or divergency of a given series. Illustrate by examples.

12. Investigate the conditions that

$$ax^2 + by^2 + cz^2 + 2lyz + 2mzx + 2nxy$$

should be a perfect square.

13. Rationalize the equation

$$\sqrt{w} + \sqrt{x} + \sqrt{y} + \sqrt{z} = 0.$$

14. Express $x^4 + \frac{1}{x^4}$ in terms of $\left(x + \frac{1}{x}\right)$.

GEOMETRY AND TRIGONOMETRY.

1. The angle at the centre of a circle is double the angle at the circumference standing on the same arc.

2. If two triangles have one angle of the one equal to one angle of the other, and the sides about the equal angles proportional, the triangles are equiangular, the equal angles being opposite homologous sides.

3. Find a mean proportional to two given lines.

4. Prove that any two sides of a triangle are to one another as the sines of the opposite angles.

5. Write down the formulae for the sine and cosine of the sum of two angles, and hence prove that

$$\text{Sin } \theta = 2 \sin \tfrac{1}{2}\theta \cos \tfrac{1}{2}\theta. \quad \text{Cos } \theta = 2 \cos^2 \tfrac{1}{2}\theta - 1.$$

6. Explain clearly the different steps in the solution of a triangle when given two sides and the included angle, proving the formulae employed.

*Appendix, No. 8.*

**General Class Examination.**

7. Assuming that $\frac{\text{circumference of a circle}}{\text{diameter}} = 3{\cdot}14159$, show that the circular measure of any angle $= \frac{\text{number of seconds}}{206265}$ approximately.

8. Describe a circle passing through a given point and touching two given circles.

9. If $R$, $r$ be the radii of the circles circumscribed to and inscribed in a given triangle, and $(\delta)$ the distance between their centres $\delta^2 = R^2 - 2Rr$.

10. An observer standing on a mountain 600 feet high just barely sees above the horizon line the top of another 1,100 feet high on the opposite side of the channel. Find the distance of the mountains, proving the formula employed.

11. Eliminate $\alpha$ and $\beta$ from the equations

$$\frac{x}{a}\cos\alpha + \frac{y}{b}\sin\alpha = 1$$

$$\frac{x}{a}\cos\beta + \frac{y}{b}\sin\beta = 1$$

$$\frac{\cos\alpha\cos\beta}{a^2} + \frac{\sin\alpha\sin\beta}{b^2} = 0$$

12. Prove that

$1 - \cos^2 A - \cos^2 B - \cos^2 C + 2\cos A\cos B\cos C = 2\sin S\sin(S - A)\sin(S - B)\sin(S - C)$ where $S = \frac{1}{2}(A + B + C)$.

13. Show that if $p$, $q$, $r$ be the three perpendiculars let fall from any point inside a triangle on its three sides, then $p\sin A + q\sin B + r\sin C = 2R\sin A\sin B\sin C$, where $A$ $B$ $C$ are the angles of the triangle, $R$ the radius of the circumscribing circle.

14. Prove Machin's formula $\frac{\pi}{4} = 4\tan^{-1}\frac{1}{5} - \tan^{-1}\frac{1}{239}$, and apply it to calculate the value of $\pi$ to 5 places of decimals.

15. Prove the exponential expressions for the sine and cosine.

Sum the series

$1 + \frac{n}{1}\sin\theta + \frac{n.n-1}{1.2}\sin 2\theta + \frac{n.n-1.n-2}{1.2.3}\sin 3\theta +$ &c., where $n$ is an integer.

16. Show that if $A$ $B$ $C$ be the angles of a triangle $\sin A + \sin B + \sin C$ lies between 0 and $\frac{3\sqrt{3}}{2}$

17. The vertical angle of a triangle is fixed in magnitude and position, and the base passes through a given point, prove the following relation between the segments $x$, $y$ of the base

$$\frac{p^2}{x^2} + \frac{q^2}{y^2} - 2\cos C\frac{pq}{xy} = \sin^2 C$$

where $p$ and $q$ are the perpendiculars let fall from the given point on the given lines.

General Class Examination.

## SECOND YEAR STUDENTS.

### ANALYTICAL GEOMETRY, &c.

1. Prove the formula for the area of a triangle in terms of the sides. Calculate the area to two places of decimals, when the sides are 12, 10, and 8 feet respectively.

2. Prove the formulae:

$$\frac{\tan\frac{1}{2}(A-B)}{\tan\frac{1}{2}(A+B)}=\frac{a-b}{a+b} \qquad \sin\tfrac{1}{2}A=\sqrt{\frac{(s-b)(s-c)}{bc}}$$

3. Show that the equation of a line cutting off intercepts $a$ and $b$ on the co-ordinate axes is $\frac{x}{a}+\frac{y}{b}=1$

Make a diagram, showing the direction and position of the following lines:

$$3x-2y=5 \qquad x+y+1=0.$$

4. Determine the co-ordinates of the point dividing the line joining the points $x'y'$ $x''y''$ internally or externally in the ratio $m:n$

Apply these expressions to determine the equation of the pair of tangents to a conic through a given point $x'y'$.

5. Show that the length of the perpendicular from the point $x'y'$ on the line $x\cos\alpha+y\sin\alpha-p=0$ is $\pm(x'\cos\alpha+y'\sin\alpha-p)$. Find the equation of the perpendicular from the point $x'y'$ on the same line.

6. Find the locus of the middle point of the chord of a circle which subtends a right angle at a given point.

7. Investigate the condition that the general equation of the second degree represent a pair of right lines.

8. Prove that the co-ordinates of the centre of a conic given by the general equation are determined by the equations $ax+hy+g=0$ $by+hx+f=0$.

Find the locus of the centre of a conic passing through four given points situated on the axes of co-ordinates.

9. Find the equation of the evolute of an ellipse.

10. The lengths of two rectangular tangents to a parabola are $a$ and $b$, prove that the paremeter $=\dfrac{4a^2b^2}{(a^2+b^2)^{\frac{3}{2}}}$

11. From any point $P$, two tangents $PQ$ and $PR$ are drawn to a conic, prove that the centre of the circle circumscribing the triangle $PQR$ lies on the major axis, if the point $P$ lies on the circle described on the foci as diameter.

12. From any point on a conic two lines are drawn through two fixed points on the axis major, find the envelope of the chord joining the points in which they meet the curve again.

13. Two tangents are drawn to a curve, such that the area of the space between the curve and the tangents is constant, prove that the tangent to the curve locus of their intersection is parallel to the corresponding chord of contact.

### DIFFERENTIAL AND INTEGRAL CALCULUS, &c.

1. Prove the series for the expansion of $a^x$ in powers of $x$.

2. Solve the equations:

$$\sqrt{1+x+x^2}+\sqrt{1-x+x^2}=\sqrt{2x}$$

$$\left.\begin{aligned} x^2-y^2&=240 \\ xy&=209 \end{aligned}\right\}$$

*Appendix,* *No. 8.*

General Class Examination.

3. Assuming that $\left(1+\frac{1}{x}\right)^x$ approaches the limit $(e)$ as $x$ increases indefinitely, investigate the differential co-efficients of $a^x$ and of $\log_a x$.

4. Differentiate the following expressions:

$$\sqrt{1-x+x} \quad e^{x\tan x} \quad x^2\log x \quad \frac{\sin 3x}{x}$$

5. Prove that $\cos\theta+\sin\theta-\frac{\theta}{\sqrt{2}}$ is a maximum when $\theta=15°$.

6. Prove that the curve $y=f(x)$, $\frac{dy}{dx}$ is the tangent of the angle which the tangent to the curve at the point $x, y$ makes with the axis of $(x)$, and hence that in the circle the tangent is perpendicular to the radius.

7. Expand sec $(x)$ as far as the fourth power of $(x)$ by Maclaurin's theorem.

8. The envelope of the curve $Ua^2+Va+W=0$, where $U\ V\ W$ are given functions of $x$ and $y$ and $a$ an arbitrary parameter, is the curve $V^2=4UW$. Prove this, 1° without 2° with, the aid of the differential calculus.

A variable line passing through a fixed point intersects two given lines, find the envelope of the circle circumscribing the triangle so formed.

9. Find the co-ordinates of the centre and the radius of the circle osculating the curve $y=f(x)$ at any point $x, y$.

Show that in the case of the curve $\frac{2y}{h}=e^{\frac{x}{h}}+e^{\frac{-x}{h}}$ the radius of curvature is equal to the intercept cut off on the normal by the axis of $(x)$.

10. Find the equation of the locus of the foot of the perpendicular from the centre of an ellipse on its tangent, 1° in $x$ & $y$, 2° in $r$ & $p$ co-ordinates. Show that if $a^2 > 2b^2$ this curve has four points of inflexion at the distance from the centre $\sqrt{\frac{2}{3}}\frac{ab}{\sqrt{a^2+b^2}}$

11. Find the limiting of

$$\frac{a^x-a^m}{x-m} \text{ when } x=m$$

and of $\frac{x^x-x}{1-x+\log x}$ when $x=1$.

12. Prove Lagrange's theorem for the expansion of $f(y)$ in powers of $x$; when $x$ & $y$ are connected by an equation of the form $y=z+x\phi(y)$.

Apply it to expand $y$ in powers of $x$ when the equation of connexion is $y=z+x\sin y$.

13. Define the symbol $\int dx$. Prove that an integral is the limit of a certain sum.

The velocity in feet per second of a stone falling in vacuo is equal to thirty-two times the number of seconds it has been falling. Find how many feet it will fall in $n$ seconds.

14. Required the following integrals:

$$\int\left(\frac{1}{x^{\frac{2}{3}}}+\sin 5x\right)dx \qquad \int\frac{dx}{x^3-1}$$

$$\int x^2\log x\,dx \qquad \int\frac{x\,dx}{(x-1)^{\frac{1}{3}}}$$

## NATURAL PHILOSOPHY.—*Examiner, Dr. Stevelly.*

### *Natural Philosophy.*

1. Define the term force. Show how forces are represented by lines. What three things must be known in order to determine a force? (Distinguish between statical and dynamical force.)

2. Define the term equilibrium. Distinguish between stable, unstable, and neutral equilibrium. When any number of forces act upon a body at one point, under what conditions will the body be in equilibrio?

3. Define the centre of gravity of a heavy body. Show how to determine that of a uniform triangular plate. If a heavy body be placed upon a supporting base, show how to determine—

(*a.*) Whether it will stand or fall.
(*b.*) The measure of its stability.
(*c.*) The direction of its fall.
(*d.*) The quantities on which the magnitude of its stability depends.

4. Enumerate the mechanical powers. Explain the principle of the lever of the first order; of the pulley; of the screw. Describe Hunter's screw, and its peculiar advantage. Describe any combination of pulleys, including not less than four, and show the relation between the power and the weight.

5. Write down the equation which connects $h$, $g$, and $v$: also that which connects $h$, $g$, and $t$: where $h$ is the height through which a body falls from rest; $g$, the accelerating force of gravity; $v$, the final velocity; $t$, the time of falling. Show how these may be determined by Atwood's machine.

6. What is the relation between the length of a pendulum, and the time of its oscillation in a small arc? Why does a pendulum not occupy the same time in oscillating at all parts of the earth's surface?

7. State accurately the difference between the weight of a body in vacuo and in any given fluid. Explain floatation. State the conditions of stable equilibrium of a body floating in any liquid. Explain how an iron ship floats.

8. How is sound propagated? How is it produced when a bell is struck? When a tuning fork is struck and held before the mouth of a cylinder closed at the further end, under what circumstances will the note be intensified?

9. State the laws of reflection, and of refraction of light. Distinguish between a real a virtual focus of a mirror. Show by a diagram the effect produced upon a direct pencil of parallel rays by each of the six forms of lenses. Name each lens as you proceed.

10. Describe the spectrum. Explain its formation. How can a ray of light traverse a prism without suffering any apparent dispersion? Explain accurately the formation of the rainbow.

11. Define the terms equator, meridian, ecliptic. Distinguish between terrestrial and celestial latitude and longitude. Distinguish between the altitude, latitude, and declination of a heavenly body. Explain the phenomena of day, night, and twilight. Why is winter cold and summer warm?

12. State the laws of magnetic attraction and repulsion. A current of electricity is caused to pass horizontally above, and parallel to, a freely suspended magnetic needle; state accurately the effect produced. Distinguish between statical and dynamical electricity; and explain the classification of bodies as conductors and non-conductors, naming some bodies belonging to each class.

*Appendix, No. 8.*

General Class Examination.

13. Explain accurately the electrical machine and its mode of action. Describe the construction and principle of the best electrical condenser with which you are acquainted, and the manner of discharging it.

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## THIRD YEAR ENGINEERING STUDENTS.

### MOTIVE POWERS AND PRINCIPLES OF MECHANISM.

1. Enumerate the classes to which the motive powers at the command of man have been reduced. Select two of them, and explain the laws by which the action of these two are governed.

2. Enunciate the laws of friction. Explain what is meant by the co-efficient of friction, and show how its value is obtained for any two given surfaces.

3. Will every species of heavy cylinder, as it rolls along a horizontal plane, oppose a uniform resistance to the action of a force parallel to the plane, which urges its centre of gravity along, parallel to the plane? Point out the part of the resistance properly due to friction, and explain the origin of any other action which may aid or oppose the urging force.

4. A mass of matter, which, at the surface of the earth, would weigh 76 lbs., is moving at the rate of 100 feet per second, how many units of work would be expended in stopping the motion of that mass?

5. A right square pyramid, whose base is 24 feet in its side, and whose perpendicular height is 36 feet, is composed of a uniform material, which weighs 166 lbs. to the cubic foot; find how many units of work will be expended in overturning it round one of the edges of its base, from a horizontal plane on which it rests.

6. A railway train travels at the uniform speed of 40 miles an hour, it is drawn by a locomotive engine of 130 horses effective power. It had been formerly found that the same train, moving at the speed of ten miles an hour, had been resisted by the atmosphere to the amount of 33 lbs. What is the entire weight of the train?

7. Substitute, in the last question, alegbraic symbols in place of the numbers, which may have different values in several practical questions which may be proposed for solution; find the resulting equation or theorem; and point out the different classes of questions which may be solved by its aid.

8. Describe the three capital improvements introduced by Watt into the steam engine, as constructed before he commenced his investigations. Explain clearly the defects remedied, and loss got rid of by each of these.

9. Compare the quantity of steam used each double stroke of the pistons of two engines, whose cylinders have equal diameters, whose pistons move through equal spaces each stroke, and which use the steam expansively, each cutting off at one-third of the stroke, one being a Cornish pumping engine, the other the most improved crank and fly-wheel condensing engine.

10. Enunciate the law, commonly called "Watt's law," and give a sketch of the nature and results of the long-continued, extensive, and carefully-conducted experiments on the Cornish engines, in establishing or disproving its strict truth.

11. Explain what is meant by "The Duty" of a steam engine, and state the facts which require to be ascertained, in order to calculate the duty of any particular engine.

12. If the velocity ratio of two pieces in a train of mechanism be constant, prove that you can obtain that ratio by measuring the spaces (or angles) simultaneously described by these pieces, no matter how

irregular the actual motions may have been with which these spaces (or angles) may have been described during the measurements.

*Appendix, No. 8.*

General Class Examination.

13. When two pieces in a train of mechanism act on each other by contact connexion, find the expression for the initial ratio of the sliding motion to the actual motion of the point of contact of the driver, or of the follower, and from that expression deduce the leading practical conclusions.

## ARTS AND THIRD YEAR ENGINEERING STUDENTS.

### HONOR PAPER.

1. Prove that if two forces, $P$ and $Q$, be impressed simultaneously, either actually or virtually, on the same point of a body in directions which contain the angle $\phi$, the magnitude of the resultant is obtained by the equation $R^2 = P^2 + Q^2 + 2PQ \cos \phi$.

2. Show how the direction of the resultant is determined, the data being the same as in the last question.

3. Prove that the effect of a couple on a rigid body is not changed by changing or varying the constituent forces and arm in any way in the same, or in any parallel plane, if the moment of the couple be preserved unchanged.

4. A merchant who is selling retail is aware that the arms of his balance are unequally long in the proportion of 7 to 8; but in order, as he thinks, to correct the error this causes, he changes the scale into which he puts the commodity, each time he weighs quantities of equal apparent weight. State whether he gains or loses, and how much per ton, and prove what you assert.

5. A ship is moving at the rate of ten British miles an hour, calculate her speed in feet per second, and state and explain the conclusion to be deduced from the fact that a person in the cabin of that ship wishing to throw anything across to a friend, must throw it in the same direction, and with the same exact force, as if the entire vessel and themselves were at rest.

6. An inert mass, acted upon by a uniform accelerating force, moves from rest over $12\frac{1}{2}$ feet in 5 seconds; find the number which expresses the dynamic effect of that force, and explain fully the units to which that number refers.

7. Given the moment of inertia of a pendulous mass with respect to an axis passing through its centre of gravity parallel to the axis on which it vibrates, and also its mass and the distance of its centre of gravity from its axis of suspension. Write down the formula which expresses the length of the pendulum it constitutes, and explain how that formula is deduced.

8. A surface of one square inch, when placed beneath the surface of pure water in a reservoir, sustains a pressure of two pounds avoirdupoise; find the pressure the same square inch will sustain if its centre of gravity be placed seventy inches deeper than it was at first.

9. If a cylindric vessel, full of a heavy inelastic fluid, be caused to revolve round its axis placed in a vertical position, its free surface will be found not to remain a horizontal plane. Explain this, and find the form of the surface.

10. Show that the images of each radiant point of a visible object placed between two plane reflectors (inclined at an acute angle), formed by the successive reflexions, are, in each case, all ranged in the circumference of a circle. Point out the centre, the radius, and the plane of that circle.

*Appendix, No. 8.*

General Class Examination.

11. An astronomer takes, with an equatorial instrument, the declination and right ascension of the centre of a comet or planet, and at the same instant his assistant at the transit instrument takes the declination and right ascension of a star then passing the meridian; show by the solution of what spherical triangle the angular distance of these two objects can be calculated from the data thus obtained.

12. Describe the general circumstances of the apparent motions of the planets. Explain these appearances in the case of a superior planet, by showing how the true motions of the earth, carrying with it the spectator, and of the planet, give rise to those appearances.

## LOGIC.—*Examiner, Dr. M'Cosh.*

### HONOR LOGIC.

1. What is Brown's and what Hamilton's doctrine as to the formation of the general notion? Specify defects in their respective theories.

2. Name the more eminent conceptualists. In what sense and how far is conceptualism the true doctrine? Mention some ambiguities and oversights in the doctrine as entertained by some, *e.g.*, Locke.

*3. Interpret the following proposition in extension, and say how many immediate inferences or transposed judgments may be derived from it by interpreting its extension:—"Mercury is a planet."

4. "Electricity does, and the nervous fluid does not, travel along a tied thread, and therefore the nervous fluid is not electricity." Put the reasoning (1) in the form of a categorical in the second figure; (2) reduce it to the first figure; (3) put it in the form of reasoning in comprehension; (4) put it in the form of a conditional.

5. "Copperas and sulphate of iron are identical; sulphate of iron and sulphate of copper are not identical; therefore copperas and sulphate of copper are not identical." Is this reasoning valid? Can it be reduced to mood and figure? What principle regulates it?

*6. Give an example of reasoning with a perfect induction. Put it in proper form, and state the regulating principle. Wherein does such an induction differ from that of Bacon?

*7. "Lias lies above coal; coal lies above old red sandstone; therefore lias lies above old red sandstone." Put this reasoning in syllogistic form.

8. State and examine Mr. Mill's doctrine as to the nature and validity of mathematical definitions and axioms.

*9. The word "induction" has been used in wider and certain narrower significations. In what sense is it used by Mill? Is there reasoning in the process? If so, how do we get our majors, and how can it be stated syllogistically?

10. What is the precise nature of the joint dogmatic and deductive method? What principles regulate it? What is the nature of the joint inductive and deductive method? What are the tests of the validity of the process? In what sciences are the methods respectively employed?

11. What is meant by the uniformity of nature? Is our conviction as to the uniformity of nature an intuitive principle? Are there intuitive principles involved in it?

12. Show that there are mutual action and adaptation involved in all physical causation.

N.B.—Persons seeking Honors omit those marked (*), and answer the following instead:—

### HONOR QUESTIONS.

*a.* Discuss the question of the precise relation between the subject and predicate in the various classes of propositions, giving historical notices of opinions. Have all propositions both extension and comprehension? Give examples.

β. What constitutes a particular proposition? What ambiguity is there in the word "some?" In what sense is it used in the common logic? "Some students are not matriculated." Can we argue that some are matriculated?

γ. Explain the exact nature and the regulating principle of disjunctive reasoning. Give the principle forms with concrete examples.

δ. Show how a miracle, though not falling out according to the uniformity of nature, is not inconsistent with any intuitive principle.

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*1. When did Plato live? Give an account of his famous illustration of "the Cave." Is it meant to set forth a theory of sense-perception? or what?

2. Give a brief account of Plato's theory of beauty, subjective and objective. What writers have adopted that theory in whole or in part? What opposite theory has been proposed? You may offer comments.

3. Name the principal philosophic works of Aristotle. What is supposed to be the origin of the word "Metaphysics?" What is the province of the First Philosophy, according to Aristotle? Explain correctly, and illustrate Aristotle's fourfold division of causes.

4. Who held that all our senses are only modifications of touch? What truth is there in the doctrine? Show that in touch there is a pleurality of senses.

5. Argue the question whether sight is cognizant of colour merely, or of extension also: give historical notices of opinions.

6. Mention the principal forms of the representative theory of sense-perception, and specify the objections to the hypothesis.

*7. What is Locke's account of knowledge and intuition? What are its excellences and defects?

*8. In what relation did Hutcheson stand to Locke? What are the excellences and defects of Hutcheson's moral system.

9. Name the principal works of Hume. Give some account of Hume's theory of the mind, specially as to impressions, ideas, association of ideas, relations, and faith. You may offer comments as to its defects.

10. What are Kant's ideas of pure reason? What is his criticism of the idea of substance, specially of the "cogito ergo sum" of Descartes?

*11. Examine the following statements of Hamilton:—"Philosophy is wholly dependent on consciousness." "The primitive cognitions seem to leap ready armed from the womb of reason, like Pallas from the head of Jupiter."

12. State and examine Hamilton's doctrine of Causality objective and subjective.

**N.B.—Students seeking for Honors omit the questions marked (*), and answer the following instead:—**

α. Give a brief historical and critical sketch of the way in which philosophers have dealt with the apparent deception of the senses.

β. State and examine Hamilton's account of comparison, or the faculty of relations. How does it differ from that given in the lectures?

γ. How did Reid and Kant respectively meet the scepticism of Hume?

δ. State and examine the doctrine that the thinkable lies between two extremes or poles.

*Appendix, No.* 8.

General Class Examination.

CIVIL ENGINEERING.—*Examiner, Professor James Thomson.*

## FIRST YEAR STUDENTS.

### GEOMETRICAL DRAWING.

1. Explain clearly what is meant in descriptive geometry by the following expressions:—*The projections of a point—The projections of a line—The projecting plane of a straight line—The traces of a line—The traces of a plane.*

2. In descriptive geometry, to draw through a given point a line parallel to a given straight line.

3. Supposing the traces of a plane and the projections of a point to be given, explain how to draw the projections of a line which passes through the given point, and is perpendicular to the plane; and how to find the length of the perpendicular intercepted between the point and the plane. Explanation without a diagram will suffice.

4. In fig. 1 of the accompanying diagram sheet, find accurately the intersection of the straight line $ac$, $a'c'$, with the plane $b\beta b'$.

5. In fig. 2 of the same diagram sheet, find accurately the traces of the plane which passes through the three points $a, a'$; $b, b'$; and $c, c'$; and show various proofs of the truth of your result.

6. Give a clear description of what is meant by a drawing in linear or geometrical perspective.

7. The perspective of an original straight line lies in the straight line drawn from the "*intersecting point*" to the "*vanishing point*" of that line, or in its continuation past the intersecting point, but not past the vanishing point. Explain and prove this.

8. Draw the projections of a one-inch cube which stands on the horizontal plane of projection, with two faces parallel to the vertical plane of projection, and with a clear space between it and the vertical plane of $1\frac{1}{2}$ inches. Draw its shadow cast on the horizontal plane of projection, taking the light as falling in a direction ordinarily adopted in orthographic writing. The following line is one inch long ————

9. A given vertical right circular cone is cut by a given plane parallel to the vertical plane of projection. Show how to find the vertical projection of the section.

10. Explain any one of the methods of drawing in perspective taught in the course of the present session.

11. Explain briefly the several methods of drawing in perspective taught in the course of the present session.

12. What is the condition as to position of the picture surface, when placed in its proper position relatively to the original objects, which is involved in the ordinary practice of representing vertical original lines by parallel upright lines in the picture; and under what condition ought vertical lines to be represented by lines converging towards a vanishing point?

13. In a panoramic picture of ordinary kind, show how to construct the representation of a straight line given by its projections, the position of the point of view and of the picture surface being also given.

14. In an ordinary picture there is only one vanishing point for any original straight line. In a panoramic picture there are ordinarily two. Explain this.

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General Class Examination.

15. Explain how it is that the point commonly called the CENTRE OF THE PICTURE, and which is also called the POLE OF THE PICTURE, need not be the middle point relatively to the bounding edges of the picture surface, but may even be at the edge or outside of it.

16. If in a perspective picture of the interior of a rectangular room (or room with walls, floor, and ceiling rectangular), the representations of two edges of the floor, and two of the ceiling be drawn converging towards the centre or pole of the picture, show that this implies that the picture, if placed in its proper position relatively to the original objects, would be perpendicular to those lines.

17. In the same case prove farther that the representation of the remote wall of the room must be a rectangle.

18. How must a rectangular block of stone be placed relatively to a plane of projection in order that its projection may be isometric?

19. In isometric drawing distinguish between the natural scale and the isometric scale, and show how either of these can be found when the other is given. Give solutions if you can, both by geometrical construction and by numerical calculation.

## SECOND YEAR STUDENTS.

### CIVIL ENGINEERING.

1. When the sides of a triangle and a split line and the segments of the base made by that line have been measured in the field, how may the accuracy of the field work be tested without any computation of area? Also, when the area of the triangle has to be computed, how may the accuracy both of the field work and of the computation of the area be tested?

2. Explain how, by the use of *boning rods*, to set out the levels or gradients for the formation surface in railway excavations at the beginning and during the progress of the excavators' operations.

3. How may the ranging of the underground workings of a tunnel be effected in ordinary cases?

4. How could you proceed by a contour survey, or otherwise, to find the content of a reservoir for water?

5. In the frustrum of a pyramid, let the areas of the two parallel faces be $A$ and $C$, and let the area of a section midway between them and parallel to them be $B$, and let their distance apart be $l$. Prove that the content of the frustrum is $= (A + 4B + C)\frac{l}{6}$. In your demonstration you may assume the ordinary rule for finding the content of a pyramid, or any of the ordinary expressions for the content of a prismoid.

6. In reference to the ranging of railway curves, prove the approximate formula

$$c = a\left(1 - \frac{a^2}{24r^2}\right)$$

in which $c$ is the chord of a circular arc $a$, and $r$ is the radius, and the arc is small in comparison with the radius.

7. What is the line of collimation of a theodolite?

8. What is the essential condition, *if any*, to be brought about in the adjustment of the line of collimation in each of the following instruments:—The common or Y theodolite;—the transit theodolite;—and Gravatt's level?

*Appendix, No. 8.*

General Class Examination.

9. In reference to the measurement of heights by use of the barometer, state and prove the law of the increase of atmospheric pressure with descent from any specified level, if the air be at a uniform temperature throughout the space from the upper to the lower level.

10. If the mercurial columns in the upper and lower barometers be at different temperatures, how may they still be used for giving the requisite information regarding the atmospheric pressures at the two stations.

11. The height of a homogeneous atmosphere varies with the temperature, but is independent of the pressure. Explain this.

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12. When the levels for a line of railway are taken merely along the centre line, sidelong slopes being neglected, whether will the calculated quantity of earth come out too much or too little, in so far as influenced by the neglect of the sidelong slopes? Give proof of your answer.

13. For computation of earthwork along an entire cutting or embankment, whether will the ordinary prismoidal method or the method of "mean areas" give generally more correct results, and why?

14. In passing from a straight line of railway into a circular curve, why is it objectionable to have the straight part simply tangential to the circular part, and preferable to introduce the curvature gradually?

15. In the ranging of railway curves, how may the process in any of the ordinary cases be slightly modified, so as to effect the easing off of the transition from the straight line into the curve of the required radius?

### OFFICE AND FIELD WORK.

1. Work out the reduced levels in the two forms of field level book submitted to you, and carry out the proper checks on the truth of the arithmetical work.

2. How may a traverse survey be plotted?

3. Give the reading of the horizontal limb of the theodolite before you.

4. Show how to reduce areas given in Irish acres, roods, and perches, to statute measure.

5. Find in feet and inches the length of 14 links of Gunter's chain:—and state how many chains there are to a mile.

6. Given in the field two points on a circular curve for a railway at a moderate distance apart:—(say one chain or thereabouts), and given also the radius of the curve, show how to range through one of them a straight tangent to the curve, and to find a third point of the curve at any given distance, moderate in amount, from the point of contact.

7. Explain how to set out the *half breadths* for a railway cutting in sidelong ground.

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## THIRD YEAR STUDENTS.

### CIVIL AND MECHANICAL ENGINEERING.

1. Give for each of the specimens of woods submitted to you the chief distinctive characters available for classification which are observable on simple inspection, and add any other remarks you have to make as to the qualities or defects of the particular specimens, as distinct from the kinds of timber to which they belong.

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General Class Examination.

2. Give information on methods for, and precautions to be observed in, depositing beton for foundations in trenches, pits, caissons, or coffer-dams;—1st, when the place for its reception is dry;—2nd, when it may be emptied by pumping;—and 3rd, when it is full of water which is not to be withdrawn.

3. Mention and describe briefly the chief modes of making castings in iron, and some of the chief defects to which they are liable.

4. Describe the process of hardening and tempering steel.

5. Explain the method taught by Buck for truncating the edge of an oblique bridge where the soffit and oblique face meet, so as to avoid an acute arris on the stones.

6. What, according to the lectures, is meant by *a perfect fluid*, of which a hypothetical conception may be formed, and may be used in hydraulic reasoning; and in what respect do true fluids actually existing in nature fall short of possessing perfect fluidity?

7. State the general principle as to the flow of water through orifices similar to one another in form, and similarly situated relatively to the still water surface, which was demonstrated in the lectures on the hypothesis of the water being a perfect fluid.

8. Apply this principle in demonstrating, according to the same hypothesis, the truth of the Lowell Formula for the flow through rectangular notches, without regard to the exact amount of its numerical co-efficients.

9. What is meant by the modulus of elasticity of a material?

10. How does the deflexion of a beam, fixed at one end and loaded at the other, vary with its length—the cross-section and the load at end remaining constant, and the weight of the beam itself being neglected?

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11. How does the strength of a rectangular beam to resist set or rupture by cross strain vary with the breadth and with the depth of its cross-section? Give demonstration or explanation of your answer.

12. Name the five Orders of Architecture and give descriptions of them sufficient to distinguish them one from another.

13. Explain the meanings of the following terms in Architecture:—Fillet, Cavetto, Ovolo, Torus, Tænia, Apophyge, Abacus, Modillion, Corbel, Bar Tracery.

### OFFICE AND FIELD WORK.

1. Give explanations of the measurement of heights by the barometer and thermometer jointly used.

2. State whether or not a theodolite fully adjusted for an observation by a person of long sight, will require an adjustment for parallax in being used for the same observation by a short-sighted person. Explain your reasons clearly.

3. Describe and explain the divisions of the primary scale and vernier of a theodolite you have practised with in your College Course.

4. Describe the practical field operations, including signalling, for ranging a curve by the angles at the circumference.

5. Given in the field two points on a circular curve for a railway, at a moderate distance apart (say one chain or thereabouts), and given also the radius of the curve: show how to range through one of them a straight tangent to the curve, and to find a third point of the curve at any given distance, moderate in amount, from the point of contact.

6. Explain the various processes ordinarily carried out, in field and office, in preparation for and in making a working section of a line of railway in a rural district.

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General Class Examination.

## NATURAL HISTORY.—*Examiner, Dr. Wyville Thomson.*

### BOTANY.

1. What materials are taken up by the roots of plants from the soil, and in what proportions?

2. What chemical changes take place in the sap during the course of its circulation, and in what parts of a plant do these changes severally occur?

3. What relation, structural and physiological, does the leaf bear to the stem?

4. Describe minutely the structure of the male reproductive organs in any one group of the Cryptogamia.

5. Describe the flower in the Orchidaceæ.

6. Describe the flower and fruit of the Umbelliferæ, giving in detail the adhesions and cohesions of parts.

7. Describe, and give the essential structure of, the follow fruits:—a follicle, a drupe, a pome, a capsule, a caryopsis, a cypsela, a cremocarp, a samara, a glans, and a hesperidium.

8. Give the characters of the natural orders, Solanaceæ, Boraginaceæ, and Labiatæ, and state in what they severally differ from the Scrophulariaceæ.

9. Refer the two plants provided, to their natural orders, and give the cohesions and adhesions of the parts of their flowers.

## CHEMISTRY.—*Examiner, Dr. Andrews.*

### PASS PAPER.

1. Reduce +40°C., and −40°C., to the corresponding degrees on Fahrenheit's scale.

2. What is the source of the cold produced by evaporation?

3. What portions of the solar spectrum are chiefly remarkable for their chemical properties?

4. How many grains of oxygen are contained in 100 grains of water, and how has this been experimentally determined?

5. State in symbols the reaction when nitric acid is prepared by the action of sulphuric acid on the nitrate of potash.

6. How is chlorine gas prepared, and what are its properties?

7. Name the bodies of which the following are the symbols:—

$NH_3$ $CaO, C_2O_3$
$NO_2$ $Fe_2O_3, 3SO_3$
$CO$ $C_4H_6O_2$
$C_2N$ $C_4H_4O_4$

8. Give an account of the principal modifications of carbon.

9. What are the general properties of carbonate of lime?

10. What are the tests of lead?

### CHEMISTRY.—HONOR PAPER.

1. What is the law of Boyle or Mariotte, and how has it been modified by recent investigations?

2. Show how the latent heat of water may be calculated by observing the diminution of temperature when a known weight of ice is allowed to melt in a given quantity of water.

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General Class Examination.

3. Describe the method of liquifying the condensable gases, and mention approximately the pressures which the more important of them exert in the liquid state at the ordinary temperature of the atmosphere.

4. How is the full extent, at both ends, of the solar spectrum beyond the visible portion determined?

5. Describe Daniell's and also the wet-bulb hygrometer, and explain their respective indications.

6. State in detail the experimental method of determining the composition of water by the action of hydrogen gas at a red heat on the oxide of copper.

7. What is the law according to which gases diffuse themselves through porous septa, and how would you verify it experimentally?

8. Give an account of the reactions which take place in the preparation of the hypochlorite of potash and of the chlorate of potash.

9. How is the density of a vapour determined, and how is the process modified, so as to apply it to the determination of the density of a vapour at very high temperatures?

10. How is marsh gas prepared artificially, and what are its properties?

11. How is the sesquichloride of carbon prepared from olefiant gas?

12. State the symbol for flouride of silicon, and give the reaction which takes place when it comes into contact with water?

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13. Describe the principal bright lines in the spectra of rubidium, cæsium, potassium, sodium, lithium, strontium, and thallium, and refer them in position to the dark lines A, a, B, C, D, E, b, F, G, H, in Fraunhofer's map of the solar spectrum.

14. Mention the more important compounds of lime, and their applications to useful purposes.

15. On what does the hardness of a water depend, and how is its amount determined? Describe also the preparation of the "standard solution."

16. What is the composition of cast iron.

17. Describe the process of fermentation and the method of determining the amount of alcohol in a fermented liquid.

18. What is the nature of a fatty body, and how are its proximate constituents obtained in a separate form?

19. Describe the general method of preparing a vegetable acid, such as the tartaric or citric, from the acid juice in which it is contained.

20. Give an account of electrical induction, and apply it to explain the action of the electrophorus.

21. On what grounds has it been inferred that electrical induction acts through the medium of material particles?

22. Give an account of Daniell's battery, and of the chemical changes which occur when it is in action.

23. Give a full account of voltaic induction, and of the construction of Ruhmkorff's machine.

24. Mention the characters of a diamagnetic body, and enumerate the more important bodies of this class.

### ENGINEERING STUDENTS

To substitute for questions 17, 18, and 19, the following:—

17*a*. What is the essential composition of an hydraulic mortar?

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General Class Examination.

18*a*. Give a general account of the method of extracting metals from their ores.

19*a*. What are the sources of thallium, and to what class of metal does it appear to belong?

### MEDICAL STUDENTS

To substitute for questions 20, 21, 22, 23, and 24, the following:—

20. How is morphia obtained from opium, and what are its characteristic reactions?
21. What is the composition of chloroform, and how is it prepared?
22. What are the more important bodies which have been obtained by the action of nitric acid on lactine or sugar of milk.
23. How would you determine the atomic weight of such an alcaloid as nicotine?
24. What is the composition of bile?

### PRACTICAL CHEMISTRY.

1. State the distinguishing tests of the bases of the second group?
2. How would you analyze a compound of phosphate of baryta and phosphate of lime?
3. What are the characteristic reactions of the bibasic and tribasic phosphoric acids?
4. State the composition of the crystalized ammoniaco-magnesian phosphate, and calculate the loss per cent. when this salt is heated to redness.
5. Describe the uranium process for determining the amount of phosphoric acid in a given solution, and mention the preliminary treatment required before this process can be applied to such a liquid as urine.
6. What are the tests of the proto and sesqui-salt of iron?
7. Describe the tests of hydrocyanic acid, and the method of determining its amount in a dilute solution.
8. Give an account of the method of determining the amount of sugar in diabetic urine by the fermentation process.
9. What is the action of sulphuric acid upon the oxalic and formic acids?
10. State the composition of tartar emetic. Describe its preparation, its properties, and the action of chemical reagents upon its solution.
11. How are meconic acid, morphia, and codeia prepared respectively from opium, and what are their distinguishing properties?

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1. What are the characteristic tests of the salts of potash, soda, and ammonia?
2. Describe the process for determining the strength of a solution of chloride of sodium by means of a salt of silver, and calculate the strength of such a solution if 100 grammes of it corresponded to 5 grammes of pure silver.
3. How would you analyze qualitatively a calculus composed of phosphate of lime and ammoniaco-magnesian phosphate?
4. Describe the quantitative analysis of magnesian limestone (a compound of carbonate of lime and carbonate of magnesia).
5. State the composition of the hydrate of the sesqui-oxide of iron,

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General Class Examination.

and describe the process for preparing it from the sulphate of the protoxide.

6. On adding alcohol to a solution of bichromate of potash containing sulphuric acid, and applying a gentle heat, chrome alum is formed: state in symbols the reaction.

7. What are the characteristic tests for the protoxide of copper?

8. How would you distinguish the following substances from one another, viz.:—the chloride, bromide, iodide, and cyanide of silver?

9. In Liebig's process for the quantitative determination of urea, how is the solution of the nitrate of the oxide of mercury prepared and its strength determined?

10. Describe Graham's method of separating crystalloids from colloids, and its application to analysis.

## MATRICULATION EXAMINATION.—OCTOBER, 1865.

Matriculation Examination.

### MATHEMATICS.—*Examiner, Professor Purser.*

#### ARITHMETIC.

1. How much money must a broker invest in the funds, when Consols are at 89½, so as to secure the same income as if he had invested £1,074 when the Consols stood at 97½?

2. Find the value of 17 cwt. 3 qrs. 13 lbs., at £3 4*s.* 7*d.* per cwt.

3. Express $\frac{3}{7}$ and $\frac{5}{9}$ as fractions having the same denominator.

Reduce to its simplest form

$\left(\frac{2}{3}-\frac{3}{5}\right)$ of a pound sterling divided by $\left(\frac{5}{7}-\frac{3}{5}\right)$ of a guinea.

4. Divide 34·96818 by ·0381.

Write each of these numbers, as well as the final quotient, in the form of a vulgar fraction.

5. The squares described upon the sides of a right angled triangle contain 11 and 15 acres respectively, calculate to two decimal places the number of yards in the hypotenuse. 4840 square yards = 1 acre.

6. After what interval should a faster runner start in pursuit of a slower in order that he may overtake him in three minutes, the ratio of their speeds being 3 : 2?

#### GEOMETRY.

1. If two triangles have two sides of the one equal to two sides of the other, each to each, and have also the contained angles equal, the triangles are equal in all respects.

2. To a given straight line apply a parallelogram, which shall be equal to a given triangle, and have one of its angles equal to a given rectilineal angle.

3. Divide a given right line into two parts, so that the rectangle under the whole line and one of its parts shall be equal to the square of the other part.

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Matriculation Examination.

ALGEBRA.

4. Solve the following equations—

1. Given that $y=\dfrac{a-bx}{c-dx}$ express $x$ in terms of $y$.

2. Multiply $\dfrac{a^2}{b^2}+2+\dfrac{b^2}{a^2}$ by $\dfrac{a}{b}+\dfrac{b}{a}$.

3. Divide
$(ay-bx)^2+(bz-cy)^2+(cx-az)^2+(ax+by+cz)^2$ by $x^2+y^2+z^2$.

4. Solve the following equations:

$$(\alpha)\quad \frac{\frac{7x}{3}-2}{4}-\frac{5x-\frac{1}{2}}{3}=\frac{\frac{x}{4}-2}{5}-\frac{10}{3}.$$

$$(\beta)\quad \frac{9x-7}{5x-13}=\frac{2}{3}.$$

$$(\gamma)\quad (x-3)(x-7)=(x+5)(x-9).$$

$$(\delta)\quad \frac{\sqrt{a+x}+\sqrt{a-x}}{\sqrt{a+x}-\sqrt{a-x}}=b.$$

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Peel Prizes.

## PEEL PRIZES IN GEOMETRY.

*Examiner, Professor Purser.*

1. If two triangles have two sides of the one proportional to two sides of the other, and the angles opposite one pair of homologous sides equal, the angles opposite the other pair are either equal or supplemental.
2. The rectangle under the diagonals of a quadrilateral inscribed in a circle is equal to the sum of the rectangles under the opposite sides.
3. One vertex of a triangle of given species is fixed, a second moves along the circumference of a given circle; find the locus of the third.
4. Given the rectangle under two lines and the difference of their squares; find the lines.
5. The sum of the squares of the sides of any quadrilateral is equal to the sum of the squares of its diagonals, together with four times the square of the line joining the middle points of the diagonals.
6. Find the locus of a point at which two given segments of the same line subtend equal angles.
7. Find a point on a circle such that the sum of its distances from two fixed points shall be the least possible.
8. Any pair of opposite angles of a quadrilateral inscribed in a circle are together equal to two right angles; find a corresponding relation amongst the angles of an inscribed hexagon.
9. Prove that the perpendiculars let fall from the vertices of an acute angled triangle upon the opposite sides will, when produced, divide the squares described on these sides into rectangles which shall be equal in pairs, and hence prove Euclid II., 13.
10. Given four points. Three lines are formed by connecting the middle point of the line joining any two with the middle point of the line joining the remaining two. Show that these three lines pass through a common point.

## SCHOLARSHIP EXAMINATIONS.—OCTOBER, 1865.

## LITERARY SCHOLARSHIPS.—FIRST YEAR STUDENTS.

### GREEK.—*Examiner, Professor MacDouall.*

I.—Translate these lines from the *Medeia* of EURIPIDES :—

ΧΟΡΟΣ. *πῶς ἂν ἐς ὄψιν τὰν ἁμετέραν*
*ἔλθοι μύθων τ' αὐδαθέντων*[1]
*δέξαιτ' ὀμφάν,*[2]
*εἴ πως βαρύθυμον*[2] *ὀργὰν*[2]
*καὶ λῆμα*[2] *φρενῶν μεθείη*[1]*!*
*μήτοι τό γ' ἐμὸν πρόθυμον*
*φίλοισιν ἀπέστω.*[1]
*ἀλλὰ βᾶσά*[1] *νιν*[1] *δεῦρο πόρευσον*[1] *οἴκων*
*ἔξω, φίλα καὶ τάδ' αὔδα*
*σπεύσασα πρίν ἤ κακῶσαι τοὺς ἔσω·*
*πένθος γὰρ μεγάλως τόδ' ὁρμᾶται.*
ΤΡΟΦΟΣ. *δράσω τάδ'· ἀτὰρ φόβος εἰ πείσω*
*δέσποιναν ἐμήν·*
*μόχθου δὲ χάριν τήνδ' ἐπιδώσω.*
*καίτοι τοκάδος*[2] *δέργμα*[2] *λεαίνης*[2]
*ἀποταυροῦται*[2] *δμωσίν,*[1] *ὅταν τις*
*μῦθον προφέρων πέλας ὁρμηθῇ.*[1]
*σκαιοὺς δὲ λέγων κοὐδέν τι σοφοὺς*
*τοὺς πρόσθε βροτοὺς οὐκ ἂν ἁμάρτοις,*
*οἵτινες ὕμνους ἐπὶ μὲν θαλίαις*[2]
*ἐπί τ' εἰλαπίναις*[2] *καὶ παρὰ δείπνοις*
*εὕροντο βίου τερπνὰς ἀκοάς,*
*στυγίους*[2] *δὲ βροτῶν οὐδεὶς λύπας*
*εὕρετο μούσῃ καὶ πολυχόρδοις*
*ᾠδαῖς*[2] *παύειν, ἐξ ὧν θάνατοι*
*δειναί τε τύχαι σφάλλουσι δόμους.*
*καίτοι τάδε μὲν κέρδος ἀκεῖσθαι*
*μολπαῖσι*[2] *βροτούς· ἵνα δ' εὔδειπνοι*
*δαῖτες, τί μάτην τείνουσι βοήν;*
*τὸ παρὸν γὰρ ἔχει τέρψιν ἀφ' αὑτοῦ*
*δαιτὸς*[1] *πλήρωμα*[2] *βροτοῖσιν.*
ΧΟΡΟΣ. *ἰαχὰν ἄϊον*[1] *πολύστονον γόων,*
*λιγυρὰ*[2] *δ' ἄχεα μογερὰ*[2] *βοᾷ*[1]
*τὸν ἐν λέχει προδόταν κακόνυμφον·*
*θεοκλυτεῖ*[2] *δ' ἄδικα παθοῦσα*
*τὰν Ζηνὸς*[1] *ὁρκίαν Θέμιν,*
*ἅ νιν ἔβασεν*[1] *Ἑλλάδ' ἐς ἀντίπορον*[2]
*δι' ἅλα νύχιον ἐφ' ἁλμυρὰν*[2]
*πόντου κλῇδ'*[1] *ἀπέραντον.*[2]

II.—1. Parse fully every word to which the figure (1) has been affixed in the text.

2. Derive or decompound every word to which the figure (2) has been affixed.

3. Elucidate the syntax of these expressions :—*πῶς ἂν ἔλθοι,—εἴ μεθείη,—μὴ ἀπέστω,—ὅταν ὁρμηθῇ,—οὐκ ἂν ἁμάρτοις,—φόβος εἰ πείσω,—δέργμα ἀποταυροῦται,—μόχθου χάριν ἐπιδώσω,—ἄχεα βοᾷ τὸν προδόταν.*

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Scholarship Examinations.

4. Notice any idioms, or any usage either of phrases or of individual words, which may seem to invite remark.

5. State the general laws of anapestic verse, and show whether one or more than one "system" is found in the extract.

6. (*a*) Mention the portions of an Attic tragedy in which Dorisms are admitted, and account for the fact historically. (*b*) Point out every Dorism found in certain of the above lines—anapaestic but not included in a system—and account for the admission of such forms in lines so constructed.

III. Translate the following sentences in Attic, marking the accentuation :—

1. These men say some one thing some another. 2. Make your own temperance an example to others. 3. Thinking that you were insulting me, you were making yourselves ridiculous. 4. To those who have committed such sins there is (left) no defence. 5. I see men differing in natural ability, but improving by attention. 6. They were willing to send away the ships on some fair arrangement. 7. We assert that the sober-minded man takes pleasure in the mere fact of being sober-minded. 8. Strength with prudence is advantageous, but without this it more frequently injures those who possess it.

I.—1. Translate this extract from the *Timon* of LUCIANUS :—

ΖΕΥΣ. *φεῦ τῆς ἀλλαγῆς! ὁ καλὸς ἐκεῖνος, ὁ πλούσιος, περὶ ὃν οἱ τοσοῦτοι φιλοι; τί παθὼν οὖν τοιοῦτός ἐστιν; αὐχμηρὸς καὶ ἄθλιος καὶ σκαπανεὺς καὶ μισθωτός, ὡς ἔοικεν, οὕτω βαρεῖαν καταφέρων τὴν δίκελλαν.* ΕΡΜ. *οὑτωσὶ μὲν εἰπεῖν, χρηστότης ἐπέτριψεν αὐτὸν καὶ φιλανθρωπία καὶ ὁ πρὸς τοὺς δεομένους ἅπαντας οἶκτος· ὡς δὲ ἀληθεῖ λόγῳ, ἄνοια καὶ εὐήθεια καὶ ἀκρισία περὶ τῶν φίλων· ὃς οὐ συνίει κόραξι καὶ λύκοις χαριζόμενος, ἀλλ', ὑπὸ γυπῶν τοσούτων ὁ κακοδαίμων κειρόμενος τὸ ἧπαρ, φίλους εἶναι αὐτοὺς καὶ ἑταίρους ᾤετο ὑπ' εὐνοίας τῆς πρὸς αὐτὸν χαίροντας τῇ βορᾷ. οἱ δέ, τὰ ὀστᾶ γυμνώσαντες ἀκριβῶς καὶ περιτραγόντες, εἰ δέ τις καὶ μυελὸς ἐνῆν ἐκμυζήσαντες καὶ τοῦτον εὖ μάλα ἐπιμελῶς, ᾤχοντο αὖον αὐτὸν καὶ τὰς ῥίζας ὑποτετμημένον ἀπολιπόντες, οὐδὲ γνωρίζοντες ἔτι οὐδὲ προσβλέποντες (πόθεν γάρ;) ἢ ἐπικουροῦντες ἢ ἐπιδιδόντες ἐν τῷ μέρει. διὰ ταῦτα δικελλίτης καὶ διφθερίας ὡς ὁρᾷς, ἀπολιπὼν ὑπ' αἰσχύνης τὸ ἄστυ μισθοῦ γεωργεῖ, μελαγχολῶν τοῖς κακοῖς, ὅτι οἱ πλουτοῦντες παρ' αὐτοῦ μάλα ὑπεροπτικῶς παρέρχονται οὐδὲ τοὔνομα—εἰ Τίμων καλοῖτο—εἰδότες.* ΖΕΥΣ. *καὶ μὴν οὐ παροπτέος ἁνὴρ οὐδὲ ἀμελητέος· εἰκότως γὰρ ἠγανάκτει δυστυχῶν· ἐπεὶ καὶ ὅμοια ποιήσομεν τοῖς καταράτοις κόλαξιν ἐκείνοις ἐπιλελησμένοι ἀνδρὸς τοσαῦτα μηρία ταύρων τε καὶ αἰγῶν πιότατα καύσαντος ἡμῖν ἐπὶ τῶν βωμῶν· ἔτι γοῦν ἐν ταῖς ῥισὶ τὴν κνῖσαν αὐτῶν ἔχω. πλὴν ὑπ' ἀσχολίας τε καὶ θορύβου πολλοῦ τῶν ἐπιορκούντων καὶ βιαζομένων καὶ ἁρπαζόντων, ἔτι δὲ καὶ ὑπὸ φόβου τοῦ παρὰ τῶν ἱεροσυλούντων (πολλοὶ γὰρ οὗτοι καὶ δυσφύλακτοι καὶ οὐδὲ ἐπ' ὀλίγον καταμῦσαι ἡμῖν ἐφιᾶσι), πολὺν ἤδη χρόνον οὐδ' ἀπέβλεψα ἐς τὴν Ἀττικήν, καὶ μάλιστα ἐξ οὗ φιλοσοφία καὶ λόγων ἔριδες ἐπεπόλασαν αὐτοῖς. μαχομένων γὰρ πρὸς ἀλλήλους καὶ κεκραγότων οὐδὲ ἐπακούειν ἐστὶ τῶν εὐχῶν· ὥστε ἢ ἐπιβυσάμενον χρὴ τὰ ὦτα καθῆσθαι ἢ ἐπιτριβῆναι πρὸς αὐτῶν ἀρετήν τινα καὶ ἀσώματα καὶ λήρους μεγάλῃ τῇ φωνῇ ξυνειρόντων. διὰ ταῦτά τοι καὶ τοῦτον ἀμεληθῆναι ξυνέβη πρὸς ἡμῶν οὐ φαῦλον ὄντα.*

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Scholarship Examinations.

2. Advert concisely to any constructions or idioms which may seem note-worthy, and point out the etymology of any words the origin and formation of which may not be quite obvious.

II.—Translate also the following extract from the *Hallencia* of XENOPHON :—

*"ἀλλ' ὅπως μὲν ὀυκ ἐγγεγένηται ἁμαρτήματα καὶ ἀφ' ἡμῶν καὶ ἀφ' ὑμῶν ἐγὼ μὲν οὐκ ἂν ἔχειν μοι δοκῶ εἰπεῖν· οὐ μέντοι οὕτω γιγνώσκω ὡς τοῖς ἁμαρτάνουσιν οὐδέποτε ἔτι χρηστέον· ὁρῶ γὰρ τῶν ἀνθρώπων οὐδένα ἀναμάρτητον διατελοῦντα· δοκοῦσι δέ μοι καὶ εὐπορώτεροι ἐνίοτε γίγνεσθαι ἄνθρωποι ἁμαρτάνοντες, ἄλλως τε καὶ ἐὰν κολασθῶσιν ὑπὸ τῶν ἁμαρτημάτων, ὡς ἡμεῖς. * * * * ἃ δὲ βουλόμενοί τινες ἀποτρέπειν τὴν εἰρήνην διαβάλλουσιν, ὡς ἡμεῖς, οὐ φιλίας δεόμενοι, ἀλλὰ φοβούμενοι νὴ 'Ανταλκίδας ἔλθῃ ἔχων παρὰ βασιλέως χρήματα, διὰ τοῦθ' ἥκομεν, ἐνθυμήθητε ὡς φλυαροῦσι. βασιλεὺς μὲν γὰρ δήπου ἔγραψε πάσας τὰς ἐν τῇ Ἑλλάδι πόλεις αὐτονόμους εἶναι· ἡμεῖς δὲ ταὐτὰ ἐκείνῳ λέγοντές τε καὶ πράττοντες τί ἂν φοβοίμεθα βασιλέα; ἢ τοῦτο οἴεταί τις, ὡς ἐκεῖνος βούλεται χρήματα ἀναλώσας ἄλλους μεγάλους ποιῆσαι μᾶλλον ἢ ἄνευ δαπάνης ἃ ἔγνω ἄριστα εἶναι ταῦτα ἑαυτῷ πεπρᾶχθαι; * * * * ἀλλ' ὅτι μὲν πόλεμοι ἀεί ποτε γίγνονται καὶ καταλύονται πάντες ἐπιστάμεθα, καὶ ὅτι ἡμεῖς, ἂν μὴ νῦν, ἀλλ' αὖθίς ποτε εἰρήνης ἐπεθυμήσομεν. τί οὖν δεῖ ἐκεῖνον τὸν χρόνον ἀναμένειν, ἕως ἂν ὑπὸ πλήθους κακῶν ἀπείπωμεν, μᾶλλον ἢ οὐχ ὡς τάχιστα πρίν τι ἀνήκεστον γενέσθαι τὴν εἰρήνην ποιήσασθαι;"*

## LATIN.—*Examiner, Professor William Nesbitt,* M.A.

I.—Translate :—

1. Cum aliud praeterquam de quo retulissent, decemviri dicere prohiberent, Claudium interpellandi verecundia fuit. sententiam igitur peregit nullum placere senatus consultum fieri. omnesque ita accipiebant privatos eos a Claudio iudicatos; multique ex consularibus verbo adsensi sunt. alia sententia, asperior in speciem, vim minorem aliquanto habuit, quae patricios coire ad prodendum interregem iubebat. censendo enim, quoscumque magistratus esse qui senatum haberent, iudicabant; quos privatos fecerat auctor nullius senatus consulti faciendi. ita labente iam causa decemvirorum L. Cornelius Maluginensis, M. Cornelii decemviri frater, cum ex consularibus ad ultimum dicendi locum consulto servatus esset, simulando curam belli fratrem collegasque eius tuebatur, quonam fato incidisset mirari se dictitans, ut decemviros qui decemviratum petissent, aut socii, aut ii maxime oppugnarent; aut quid ita, cum per tot menses vacua civitate nemo, iustine magistratus summae rerum praeessent, controversiam fecerit, nunc demum, cum hostes prope ad portas sint, civilis discordias serant, nisi quod in turbido minus perspicuum fore putent, quid agatur. ceterum neminem, maiore cura occupatis animis, verum esse praeiudicium rei tantae adferre. sibi placere de eo, quo Valerius Horatiusque ante idus Maias decemviros abisse magistratu insimulent, bellis, quae immineant, perfectis re publica in tranquillum redacta senatu disceptante agi; et iam nunc ita se parare Ap. Claudium, ut comitiorum, quae decemviris creandis decemvir ipse habuerit, sciat sibi tiraonem reddendam esse, utrum in unum annum creati sint, an donec leges, quae deessent, perferrentur.—LIVIUS iii. 40.

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Scholarship Examinations.

1. Write brief notes on the following expressions :—*sententiam peregit; verbo assensi sunt; quae patricios coire ad prodendum interregem jubebat; præjudicium rei adferre.*

2. Give the dates of the institution of the tribunate and the decemvirate, and state the circumstances which led to each. What was the original number of the tribunes, and in what years did the successive augmentations of their number take place? What constitutional changes followed immediately on the downfall of the decemvirate? Give the date of the institution of the *comitia tributa;* describe its constitution, and show how it differed from that of the *comitia centuriata.*

II.—Translate into Latin prose :—

Lucius chose Lucius Tarquitus to be master of the horse, a brave man and of a burgher's house; but so poor withal, that he had been used to serve among the foot-soldiers instead of among the horse. Then the master of the people and the master of the horse went together into the forum, and bade every man to shut up his booth, and stopped all causes at law, and gave an order that none should look to his own affairs till the consul and his army were delivered from the enemy. They ordered also that every man who was of an age to go out to battle, should be ready in the field of Mars before sunset, and should have with him victuals for five days, and twelve stakes; and the older men dressed the victuals for the soldiers, whilst the soldiers went about everywhere to get their stakes. So the army was ready in the field at the time appointed; and they set forth from the city, and came to Algidus; and when they perceived that they were near the enemy, they made a halt. Then Lucius rode on, and saw how the camp of the enemy lay; and he ordered his soldiers to throw down all their baggage into one place, but to keep each man his arms and twelve stakes. Then they set out again in their order of march, as they had come from Rome, and they spread themselves round the camp of the enemy on every side.

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Translate, adding brief notes when a word, a construction, or an allusion seems to require it :—

1. Mos erat Hesperio in Latio, quem protenus urbes
Albanae coluere sacrum, nunc maxima rerum
Roma colit, quum prima movent in proelia Martem,
Sive Getis inferre manu lacrimabile bellum
Hyrcanisve Arabisve parant, seu tendere ad Indos
Auroramque sequi Parthosque reposcere signa.
Sunt geminae Belli portae—sic nomine dicunt—
Religione sacrae et saevi formidine Martis;
Centum aerei claudunt vectes aeternaque ferri
Robora, nec custos absistit limine Ianus:
Has, ubi certa sedet patribus sententia pugnae,
Ipse Quirnali trabea cinctugue Gabino
Insignis, reserat stridentia limina consul;
Ipse vocat pugnas, sequitur tum cetera pubes,
Aereaque adsensu conspirant cornua rauco.
Hoc et tum Aeneadis indicere bella Latinus
More iubebatur, tristesque recludere portas.
Abstinuit tactu pater, aversusque refugit
Foeda ministeria, et caecis se condidit umbris.
Tum regina deûm, coelo delapsa, morantes

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Scholarship Examinations.

Impulit ipsa manu portas, et cardine verso
Belli ferratos rumpit Saturnia postes.
Ardet inexcita Ausonia atque immobilis ante:
Pars pedes ire parat campis, pars arduus altis
Pulverulentus equis furit; omnes arma requirunt
Pars leves clipeos et spicula lucida tergent
Arvina pingui, subiguntque in cote secures;
Signaque ferre iuvat, sonitusque audire tubarum.
VIRGILIUS—*Æneid*, vii. 601–628.

2. Ecce autem duro fumans sub vomere taurus
Concidit et mixtum spumis vomit ore cruorem,
Extremosque ciet gemitus. It tristis arator,
Maerentem abiungens fraterna morte iuvencum,
Atque opere in medio defixa relinquit aratra.
Non umbrae altorum memorum, non mollia possunt
Prata movere animum, non qui per saxa volutus
Purior electro campum petit amnis; at ima
Solvuntur latera, atque oculos stupor urget inertes,
Ad terramque fluit devexo pondere cervix.
Quid labor aut benefacta iuvant? quid vomere terras
Invertisse graves? atqui non Massica Bacchi
Munera, non illis epulae nocuere repostae:
Frondibus et victu pascuntur simplicis herbae,
Pocula sunt fontes liquidi atque exercita cursu
Flumina, nec somnos abrumpit cura salubres.
VIRGILIUS—*Georg.* iii. 515–530.

3. Horrida tempestas coelum contraxit, et imbres
Nivesque deducunt Iovem; nunc mare, nunc siluae
Threicio Aquilone sonant: rapiamus, amici,
Occasionem de die, dumque virent genua
Et decet, obducta solvatur fronte senectus.
Tu vina Torquato move consule pressa meo;
Cetera mitte loqui: deus haec fortasse benigna
Reducet in sedem vice. Nunc et Achaemenio
Perfundi nardo iuvat et fide Cyllenea
Levare diris pectora sollicitudinibus,
Nobilis ut grandi cecinit Centaurus alumno:
"Invicte, mortalis dea nate puer Thetide,
Te manet Assaraci tellus, quam frigida parvi
Findunt Scamandri flumina lubricus et Simois,
Unde tibi reditum certo subtemine Parcae
Rupere, nec mater domum caerula te revehet.
Illic omne malum vino cantuque levato,
Deformis aegrimoniae dulcibus alloquiis."
HORATIUS—*Epod.* xiii.

### QUESTIONS ON GRAMMAR.

1. What is meant by the stem of a word? Classify nouns according to the termination of their stems, and show that all their declensions were originally one. Give a similar classification of verbs.

2. Decline *plebs, vesper, poema, penus;* and give the principal parts of the verbs *lavo, ferveo, indulgeo, pungo, pendo, lino, pinso, facesso,* marking the quantities of doubtful syllables. Explain the forms *levasso, faxim, capso.*

3. Give the Latin symbols for numbers up to a million, and translate into Latin the following: "Cæsar took 5,320 Gauls prisoners." "This happened in the year 1628."

4. Explain the following expressions:—

*Accepi vicies sestertium.*
*Serviliæ sexagies sestertio margaritam mercatus est.*
*Supplicatio indicta est ex ante diem quintum Idus Octobres.*

(Give the rule for reducing a Roman to an English date.)

*Cn. Pompeius Sex. F. Cn. N. Strabo.*

(What did the three names of a Roman citizen respectively indicate?)

5. When a speech is changed from the *direct* to the *oblique* form, what changes of mood take place?

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## HISTORY AND THE ENGLISH LANGUAGE.—*Examiner, Professor Craik.*

### ENGLISH.

1. A short, but very carefully written essay, *by every competitor*, on what we owe to the art of printing.
2. Explain what advantages you expect to derive from coming to College.
3. Sketch briefly the history of the conquest of England by the Normans.
4. Give an account of the Spanish Armada.
5. Give a short account of the second Messenian war.
6. Explain the origin of the Peloponnesian war, and state what side was taken by each of the States of Greece that engaged in it.

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## SECOND YEAR STUDENTS.

### GREEK.—*Examiner, Professor MacDouall.*

I.—Translate perspicuously these lines from the XXth Book of the *Ilias*:—

αὐτὰρ ὃ Λαόγονον καὶ Δάρδανον υἷε[1] Βίαντος
ἄμφω ἐφορμηθεὶς ἐξ ἵππων ὦσε[1] χαμᾶζε,[2]
τὸν μὲν δουρὶ[1] βαλών, τὸν δὲ σχεδὸν ἄορι[2] τύψας.
Τρῶα δ' Ἀλαστορίδην—ὃ μὲν ἀντίος ἥπτετο γούνων,[1]—
εἰ πώς εὐ πεφίδοιτο,[1] λαβών, καὶ ζωὸν ἀφείη[1]
μηδὲ κατακτείνειεν ὁμηλικίην[2] ἐλεήσας,—
νήπιος,[2] οὐδὲ τὸ ᾔδη[1] ὃ οὐ πείσεσθαι[1] ἔμελλεν·
οὐ γάρ τι γλυκύθυμος ἀνὴρ ἦν οὐδ' ἀγανόφρων,[2]
ἀλλὰ μάλ' ἐμμεμαώς.[1] ὃ μὲν ἥπτετο χείρεσι[1] γούνων
ἱέμενος λίσσεσθ', ὃ δέ φασγάνῳ οὖτα[1] καθ' ἧπαρ[1]·
ἐκ δέ οἱ ἧπαρ ὄλισθεν,[1] ἀτὰρ μέλαν αἷμα κατ' αὐτοῦ
κόλπον ἐνέπλησεν,[1] τὸν δὲ σκότος[1] ὄσσε[1] κάλυψεν.

* * * * *

Δευκαλίωνα δ' ἔπειθ'—ἵνα τε ξυνέχουσι τένοντες[2]
ἀγκῶνος,[2] τῇ τόν γε φίλης διὰ χειρὸς ἔπειρεν[1]
αἰχμῇ χαλκείῃ. ὃ δέ μιν μένε χεῖρα βαρυνθεὶς[1]
πρόσθ' ὁράων θάνατον· ὃ δέ φασγάνῳ αὐχένα θείνας[1]
τῆλ' αὐτῇ πήληκι κάρη[1] βάλε· μυελὸς αὖτε

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Scholarship Examinations.

σφονδυλίων[2] ἔκπαλθ'[1], ὃ δ' ἐπὶ χθονὶ κεῖτο τανυσθείς.[1]
αὐτὰρ ὃ βῆ[1] ῥ' ἴέναι μετ' ἀμύμονα[2] Πείρεω[1] υἱὸν
'Ρίγμον', ὃς ἐκ Θρῄκης ἐριβώλακος[2] εἰληλούθει.[1]
τὸν βάλε μέσσον ἄκοντι,[2] πάγη[1] δ' ἐν πνεύμονι[2] χαλκός·
ἤριπε[1] δ' ἐξ ὀχέων.[2] ὃ δ' Ἀρηΐθοον θεράποντα
ἂψ ἵππους στρέψαντα μετάφρενον[2] ὀξέϊ δουρὶ
νύξ', ἀπὸ δ' ἅρματος ὦσε· κυκήθησαν δέ οἱ ἵπποι.
ὡς δ' ἀναμαιμάει[2] βαθέ' ἄγκεα θεσπιδαὲς[2] πῦρ
οὔρεος[1] ἀζαλέοιο,[2] βαθεῖα δὲ καίεται ὕλη,
πάντῃ τε κλονέων ἄνεμος φλόγα εἰλυφάζει,[2]
ὣς ὅ γε πάντῃ θῦνε[1] σὺν ἔγχεϊ δαίμονι ἶσος
κτεινομένους ἐφέπων· ῥέε δ' αἵματι γαῖα μέλαινα.
ὡς δ' ὅτε τις ζεύξῃ βόας[1] ἄρσενας εὐρυμετώπους
τριβέμεναι[1] κρῖ[1] λευκὸν ἐυκτιμένῃ[2] ἐν ἀλωῇ,
ῥίμφα[2] τε λέπτ' ἐγένοντο βοῶν ὑπὸ πόσσ' ἐριμύκων[2]

* * * * *

ὣς ὑπ' Ἀχιλλῆος μεγαθύμου μώνυχες[2] ἵπποι
στεῖβον ὁμοῦ νέκυάς τε καὶ ἀσπίδας· αἵματι δ' ἄξων[2]
νέρθεν[2] ἅπας πεπάλακτο[1] καὶ ἄντυγες αἳ περὶ δίφρον,[2]
ἃς ἄρ' ἀφ' ἱππείων ὁπλέων[1] ῥαθάμιγγες[2] ἔβαλλον
ἠδ' ἀπ' ἐπισσώτρων.[2] ὃ δὲ ἵετο κῦδος ἀρέσθαι[1]
Πηλεΐδης, λύθρῳ[2] δὲ παλάσσετο χεῖρας ἀάπτους.[2]

1. (*a*) Parse fully every noun and verb to which the figure (1) is here affixed, mentioning whatever is noticeable in the flexion of each, and substituting for every Homeric form its Attic counterpart. (*b*) Give the forms which would be used in Attic prose instead of τό (vs. 7), τῇ τόν γε (vs. 14), ὅ δέ μιν (vs. 15), εὑ (vs. 5), οἱ (vs. 11), ἵνα τε (vs. 13), ἠδέ (vs. 37).

2. Derive or decompound every word to which the figure (2) is here affixed.

3. (*a*) Explain the use of the genitive εὑ in vs. 5,—of the dative οἱ in vs. 11, and also in another vs. which you will point out,—of the accusative in vs. 4, and also in a parallel vs. which you will point out,—of the double accusative in vs. 12, and also in another vs. which you will point out. (*b*) What idiom is exemplified in vs. 17? (*c*) Explain the usage of the infinitive in vs. 31,—of the subjunctive-passing in vs. 30,—and of the indicative-past-indefinite in vs. 32.

4. Point out any examples of illicit *hiatus* or *elisio* which you may observe in the lines printed above.

5. Some critics suppose only the *protasis*, in vss. 30, 31, 32, to be genuine here, and the *apodosis*, in vss. 33–37, to have been introduced—along with vs. 38—from other passages, in order to fill up the *lacuna*. State the main objection to vss. 33–37 in this context, and briefly discuss it.

II.—Translate also the following lines on the Moon-Goddess:—

Μήνην εὐειδῆ τανυσίπτερον ἔσπετε, Μοῦσαι,
ἡδυεπεῖς κοῦραι Κρονίδεω Διός, ἵστορες ᾠδῆς!
ἧς αἴγλη περὶ γαῖαν ἑλίσσεται οὐρανόδεικτος
χρυσέου ἀπὸ στεφάνου, ἀκτῖνες δ' ἐνδιάονται,
εὖτ' ἂν ἀπ' Ὠκεανοῖο, λοεσσαμένη χρόα καλόν,
εἵματα ἑσσαμένη τηλαυγέα, δῖα Σελήνη
ζευξαμένη προτέρω ἐλάσῃ καλλίτριχας ἵππους
ἑσπερίη διχόμηνος· ἀτὰρ πλήθει μεγας ὄγμος,
λαμπρόταται δ' αὐγαὶ τότ' ἀεξομένης τελέθουσιν
οὐρανόθεν. τέκμωρ δὲ βροτοῖς καὶ σῆμα τέτυκται.

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Scholarship Examinations.

I.—Translate perspicuously the annexed extract from the *Phædon* of Platon :—

*Λέγεται τοίνυν, ἔφη, ὦ ἑταῖρε! πρῶτον μὲν εἶναι τοιαύτη ἡ γῆ αὐτὴ ἰδεῖν, εἴ τις ἄνωθεν θεῷτο, ὥς περ αἱ δωδεκάσκυτοι[1] σφαῖραι, ποικίλη, χρώμασι διειλημμένη,[1] ὧν καὶ τὰ ἐνθάδε χρώματα εἶναι ὥς περ δείγματα, οἷς δὴ οἱ γραφεῖς καταχρῶνται. ἐκεῖ δὲ πᾶσαν τὴν γῆν ἐκ τοιούτων εἶναι καὶ πολὺ ἔτι λαμπροτέρων καὶ καθαρωτέρων ἢ τούτων· τὴν μὲν γὰρ ἀλουργῆ[1] εἶναι καὶ θαυμαστὴν τὸ κάλλος, τὴν δὲ χρυσοειδῆ,[1] τὴν δὲ γύψου ἢ χιόνος λευκοτέραν, καὶ ἐκ τῶν ἄλλων χρωμάτων[1] ξυγκειμένην ὡσαύτως καὶ ἔτι πλειόνων καὶ καλλιόνων ἢ ὅσα ἡμεῖς ἑωράκαμεν. καὶ αὐτὰ ταῦτα ἂν κοῖλα αὐτῆς, ὕδατός τε καὶ ἀέρος ἔμπλεα ὄντα, χρώματός τι εἶδος παρέχεσθαι στίλβοντα ἐν τῇ τῶν ἄλλων ποικιλίᾳ, ὥστε ἕν τι αὐτῆς εἶδος ξυνεχὲς ποικίλον φαντάζεσθαι.[1] ἐν δὲ ταύτῃ οὔσῃ τοιαύτῃ ἀνὰ λόγον τὰ φυόμενα φύεσθαι, δένδρα τε καὶ ἄνθη καὶ καρπούς. καὶ τοὺς λίθους ἔχειν ὡσαύτως τήν τε λειότητα καὶ τὴν διαφάνειαν[1] καὶ τὰ χρώματα καλλίω· ὧν καὶ τὰ ἐνθάδε λιθίδια[1] εἶναι ταῦτα τὰ ἀγαπώμενα μόρια,[1] σάρδιά[1] τε καὶ ἰάσπιδας καὶ σμαράγδους καὶ πάντα τὰ τοιαῦτα· ἐκεῖ δὲ οὐδὲν ὅ τι οὐ τοιοῦτον εἶναι καὶ ἔτι τούτων κάλλιον. τὸ δ᾽ αἴτιον τούτου εἶναι, ὅτι ἐκεῖνοι οἱ λίθοι καθαροί εἰσι καὶ οὐ κατεδηδεσμένοι οὐδὲ διεφθαρμένοι, ὥς περ οἱ ἐνθάδε, ὑπὸ σηπεδόνος[1] καὶ ἅλμης[1] ἀπὸ τῶν δεῦρο ξυνεῤῥυηκότων,[1] ἃ καὶ λίθοις καὶ γῇ καὶ ζώοις καὶ φυτοῖς αἴσχη τε καὶ νόσους παρέχει. τὴν δὲ γῆν αὐτὴν κεκοσμῆσθαι τούτοις τε ἅπασι καὶ ἔτι χρυσῷ τε καὶ ἀργύρῳ καὶ ἄλλοις τοιούτοις. ἐκφανῆ γὰρ αὐτὰ πεφυκέναι, ὄντα πολλὰ πλήθει καὶ μεγάλα καὶ πανταχοῦ τῆς γῆς, ὥστε αὐτὴν ἰδεῖν εἶναι θέαμα εὐδαιμόνων θεατῶν. ζῶα δ᾽ ἐπ᾽ αὐτῆς εἶναι ἄλλα τε πολλὰ καὶ ἀνθρώπους, τοὺς μὲν ἐν μεσογείᾳ[1] οἰκοῦντας, τοὺς δὲ περὶ τὸν ἀέρα ὥς περ ἡμεῖς περὶ τὴν θάλατταν, τοὺς δὲ ἐν νήσοις ἃς περιῤῥεῖν τὸν ἀέρα πρὸς τῇ ἠπείρῳ οὔσας. καὶ ἑνὶ λόγῳ, ὅ περ τὸ ὕδωρ καὶ ἡ θάλαττά ἐστι πρὸς τὴν ἡμετέραν χρείαν, τοῦτο ἐκεῖ τὸν ἀέρα, ὃ δὲ ἡμῖν ὁ ἀήρ, ἐκείνοις τὸν αἰθέρα. τὰς δὲ ὥρας αὐτοῖς κρᾶσιν[1] ἔχειν τοιαύτην, ὥστε ἀνόσους εἶναι καὶ χρόνον ζῆν πολὺ πλείω τῶν ἐνθάδε, καὶ ὄψει καὶ ἀκοῇ καὶ ὀσφρήσει[1] καὶ πᾶσι τοῖς τοιούτοις ἡμῶν ἀφεστάναι τῇ αὐτῇ ἀποστάσει ᾗ περ ἀήρ τε ὕδατος ἀφέστηκε καὶ αἰθὴρ ἀέρος πρὸς καθαρότητα. καὶ δὴ καὶ θεῶν ἔδη τε καὶ ἱερὰ αὐτοῖς εἶναι, ἐν οἷς τῷ ὄντι οἰκητὰς[1] θεοὺς εἶναι, καὶ φήμας[1] τε καὶ μαντείας καὶ αἰσθήσεις τῶν θεῶν καὶ τοιαύτας ξυνουσίας γίγνεσθαι, καὶ τὸν ἥλιον καὶ σελήνην καὶ ἄστρα ὁρᾶσθαι ὑπ᾽ αὐτῶν οἷα τυγχάνει ὄντα, καὶ τὴν ἄλλην εὐδαιμονίαν τούτων ἀκόλουθον[1] εἶναι.*

II.—1. (*a*) Give as clear a view as you can of the entire geological discussion of which the extract is a specimen, discriminating portions based upon observation of physical phaenomena from speculative generalizations, and both from the mythical setting of the picture. (*b*) Explain how this discussion is associated with and made to bear upon the doctrine relating to the future destinies of men which is unfolded in the context.

2. Explain the emphasis in *ἡ γῆ αὐτὴ* or *τὴν γῆν αὐτήν*,—the antithesis between *ἐνθάδε* and *ἐκεῖ* or between *ἡμῖν* and *ἐκείνοις*,—the phrases, *ταῦτα τὰ κοῖλα αὐτῆς ὕδατος καὶ ἀέρος ἔμπλεα*, *τῶν δεῦρο ξυνερρυηκότων*, and *οἰκοῦντας περὶ τὸν ἀέρα ὥς περ ἡμεῖς περὶ τὴν θάλατταν κ. τ. λ.*

3. Derive or decompound the words to which the figure (1) is affixed, noticing the classes of derivatives which they severally represent and the rules of word building which they exemplify.

*Appendix, No. 8.*

Scholarship Examinations.

III.—Retranslate in Attic prose the following statement of Phædon:—

I for my part on entering his presence was affected strangely. It was not pity which penetrated me as one present at the death of a friend: for the man appeared to me to be happy, Echecrates! in both his frame of mind and his discourse—so fearlessly and nobly did he meet his death: so that it occurred to me, that not even in going to Hades was he going without a divine destiny, but that on arriving even there he would be happy, if ever man was. For this reason no feeling of pity at all influenced me, as might have seemed likely to be the case with one present at so sad a scene. Nor on the other hand did I experience pleasure from our being engaged, as was our custom, in philosophical discussions—for our conversation was of that nature. But an altogether unaccountable feeling possessed me, an unusual mixture compounded of pleasure and pain, while I considered that he was immediately about to die.

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## LATIN.—*Examiner, Professor William Nesbitt*, M.A.

Translate:—

1. *Antipho.* Non sum apud me. *Geta.* Atqui opus est nunc quum maxime ut sis, Antipho:
Nam si senserit te timidum pater esse, arbitrabitur
Commeruisse culpam. *Phædria.* Hoc verum 'st. *A* non possum immutarier.
*G.* Quid faceres, si aliud quid gravius tibi nunc faciundum foret?
*A.* Quum hoc non possum, illud minus possem. *G.* Hoc nihil est, Phædria: *ilicet*
Quid hic conterimus operam frustra? quin abeo? *Ph.* Et quidem ego. *A.* Obsecro,
Quid si adsimulo, satin' est? *G.* Garris. *A.* Vultum contemplamini; hem,
Satin' est sic? *G.* Non. *A.* Quid si sic? *G.* Propemodum. *A.* Quid si sic? *G.* Sat est:
Hem, istuc serva: et verbum verbo, par pari ut respondeas,
Ne te iratus suis sævidicis dictis *protelet.* *A.* Scio.
*G.* Vi coactum te esse, invitum, lege, judicio: tenes?
Sed quis hic est senex, quem video in ultima platea? *A.* Ipsus est.
Non possum adesse. *G.* Ah, quid agis? quo abis, Antipho?
Mane, inquam. *A.* Egomet me novi et peccatum meum:
Vobis commendo Phanium et vitam meam.
*Ph.* Geta, quid nunc fiet? *G.* Tu jam lites audies:
Ego *plectar pendens*, nisi quid me fefellerit,
Sed, quod modo hic nos Antiphonem monuimus,
Id nosmet ipsos facere oportet, Phædria.
*Ph.* Aufer mi oportet: quin tu, quid faciam, impera.
*G.* Meministin', olim ut fuerit vestra oratio
In re incipiunda ad defendendam noxiam,
Justam illam causam, facilem, vincibilem, optumam?
*Ph.* Memini. *G.* Hem, nunc ipsa 'st opus ea: aut, si quid potest,
Meliore et callidiore. *Ph.* Fiet sedulo.
*G.* Nunc prior adito tu. Ego in subsidiis hic ero
*Succenturiatus* si quid deficias. *Ph.* Age.

TERENCE—*Phormio*, i. 4–27.

*Appendix, No. 8.*

Scholarship Examinations.

(*a*) Write brief notes on the words printed in italics.
(*b*) Deduce the different uses of *quin* from its derivation.

2. Janua nunc Regis posita viret arbore Phœbi :
   Ante tuas fit idem, Curia Prisca, fores.
Vesta quoque ut folio niteat velata recenti,
   Cedit ab Iliacis laurea cana focis.
Adde, quod arcana fieri novus ignis in æde
   Dicitur ; et vires flamma refecta capit.
Nec mihi parva fides, annos hinc isse priores,
   Anna quod hos cœpta est mense Perenna coli.
Hinc etiam veteres initi memorantur honores
   Ad spatium belli, perfide Pœne, tui,
Denique quintus ab hoc fuerat Quintilis : et inde
   Incipit, a numero nomina quisquis habet.
Primus, oliviferis Romam deductus ab arvis,
   Pompilius menses sensit abesse duos.
Sive hoc a Samio doctus, qui posse renasci
   Nos putat ; Egeria sive monente sua.
Sed tamen errabant etiamnum tempora ; donec
   Cæsaris in multis hæc quoque cura fuit.
Non hæc ille Deus, tantæque propaginis auctor,
   Credidit officiis esse minora suis :
Promissumque sibi voluit prænoscere cœlum,
   Nec Deus ignotas hospes inire domos.
Ille moras Solis, quibus in sua signa rediret,
   Traditur exactis disposuisse notis.
Is decies senos trecentum et quinque diebus
   Junxit, et e pleno tempora quarta die.
Hic anni modus est. In lustrum accedere debet,
   Quæ consummatur partibus, una dies.

OVID—*Fasti*, iii. 139–166.

(*a*) Write brief notes on *Regis, Curia Prisca, oliviferas* and *a Samio doctus.*
(*b*) What is the true explanation of the name *Anna Perenna?*

3. Tum vero infelix fatis exterrita Dido
Mortem orat : taedet coeli convexa tueri.
Quo magis inceptum peragat lucemque relinquat,
Vidit, turicremis quum donna imponeret aris,—
Horrendum dictu—latices nigrescere sacros,
Fusaque in obscenum se vertere vina cruorem.
Hoc visum nulli, non ipsi effata sorori.
Praeterea fuit in tectis de marmore templum
Coniugis antiqui, miro quod honore colebat,
Velleribus niveis et festa fronde revinctum :
Hinc exaudiri voces et verba vocantis
Visa viri, nox quum terras obscura teneret ;
Solaque culminibus ferali carmine bubo
Saepe queri et longas in fletum ducere voces.
Multaque praeterea vatum praedicta priorum
Terribili monitu horrificant. Agit ipse furentem
In somnis ferus Aeneas, semperque relinqui
Sola sibi, semper longam incomitata videtur
Ire viam et Tyrios deserta quaerere terra :
Eumenidum veluti demens videt agmina Pentheus,

Et solem geminum et duplices se ostendere Thebas;
Aut Agamemnonius scenis agitatus Orestes,
Armatam facibus matrem et serpentibus atris
Quum fugit, ultricesque sedent in limine Dirae.

VIRGIL—*Æneid.* iv. 450–473.

Translate into Latin Hexameters:—

Come track with me this little vagrant rill,
  Wandering in wild course from the mountain's breast;
  Now with a brink of varied flowers drest,
And playing with the sloping buds at will,
Now moving scarce with noiseless step and still.
  Anon it seems too weary of its rest,
  And hurries on, leaping with sparkling zest
Adown the ledges of the broken hill.
So let us live——

1.—Translate:—

1. Iamque omnibus satis comparatis ad traiciendum terrebant ex adverso hostes omnem ripam equites virique obtinentes; quos ut averteret, Hannonem Bomilcaris filium vigilia prima noctis cum parte copiarum, maxime Hispanis, adverso flumine ire iter unius diei iubet, et ubi primum possit, quam occultissime traiecto amni circumducere agmen, ut, cum opus facto sit, adoriatur ab tergo hostem. ad id dati duces Galli edocent, inde milia quinque et viginti ferme supra parvae insulae circumfusum amnem latiorem, ubi dividebatur, eoque minus alto alveo transitum ostendere. ibi raptim caesa materia ratesque fabricatae, in quibus equi virique et alia onera traicerentur. Hispani sine ulla mole in utres vestimentis coniectis ipsi caetris superpositis incubantes flumen tranavere. et alius exercitus ratibus iunctis traiectis, castris prope flumen positis, nocturno itinere atque operis labore fessus quiete unius diei reficitur, intento duce ad consilium opportune exsequendum. postero die profecti ex loco prodito fumo significant transisse et haud procul abesse. quod ubi accepit Hannibal, ne tempori deesset, dat signum ad traiciendum. iam paratas aptatasque habebat pedes lintres. eques fere propter equos nantes navium agmen ad excipiendum adversi impetum fluminis parte superiore transmittens tranquillitatem infra traicientibus lintribus praebebat. equorum pars magna nantes loris a puppibus trahebantur praeter eos, quos instratos frenatosque, ut extemplo egresso in ripam equiti usui essent, imposuerant in naves.

LIVY, xxi. 27.

What emendations have been proposed for *prodito*?

How has the corrupt reading, *eques fere propter equos nantes*, been amended?

Explain the following:—

(*a*) Tantumque aberat ut sua *signa* atque *ordinem* miles et *locum* nosceret.

(*b*) *Prodictatorem populus creavit* Q. Fabium Maximum. Who had been the last dictator *rei gerendæ causa*? When may the dictatorship be said to have been abolished?

(*c*) Plebei scitum *antiquo abrogoque*, et sub imperium *auspiciumque* tuum redeo.

(*d*) —— res inde gestas ——*et augentis titulum imaginis* posteros, ut, qui pro dictatore fuisset, dictator crederetur facile obtinuisse.

*Appendix, No. 8.*

Scholarship Examinations.

(*e*) Æris *gravis* viginti milia.

(*f*) Nam ad eum diem nihil praeter *sacramentum* fuerat; et ubi *ad decuriatum aut centuriatum* convenissent, sua voluntate ipsi inter sese decuriati equites centuriati pedites conjurabant. (Give Madvig's emendation.)

(*g*) Quod Hannibal jam *vel usa* cepisset Italiam.

2. Quo mihi etiam indignius videtur obtrectatum esse adhuc, Gabinio dicam anne Pompeio, an utrique, id quod est verius, ne legaretur A. Gabinius Cn. Pompeio expetenti ac postulanti. Utrum ille, qui postulat ad tantum bellum legatum quem velit, idoneus non est qui impetret, quum caeteri ad expilandos socios diripiendasque provincias quos voluerunt legatos eduxerint, an ipse, cuius lege salus ac dignitas populo Romano atque omnibus gentibus constituta est, expers esse debet gloriae eius imperatoris atque exercitus, qui consilio ipsius ac periculo est constitutus? An C. Falcidius, Q. Metellus, Q. Caelius Latiniensis, Cn. Lentulus, quos omnes honoris causa nomino, quum tribuni plebi fuissent, anno proximo legati esse potuerunt: in uno Gabinio sunt tam diligentes, qui in hoc bello, quod lege Gabinia geritur, in hoc imperatore atque exercitu, quem per vos ipse constituit, etiam praecipuo iure esse deberet? De quo legando consules spero ad senatum relaturos. Qui si dubitabunt aut gravabuntur, ego me profiteor relaturum, neque me impediet cuiusquam inimicum edictum, quo minus vobis fretus vestrum ius beneficiumque defendam, neque praeter intercessionem quidquam audiam, de qua, ut arbitror, isti ipsi qui minantur, etiam atque etiam quid liceat considerabunt.

Cicero—*De Imperio Cn. Pompei*, c. 19.

(*a*) What law prevented Gabinius from being Pompey's legatus? The law does not seem to have been strictly observed? The cases cited by Cicero in favour of Gabinius' commission are not to the point? Write notes on, *ego me profiteor relaturum;—inimicum edictum;—vestrum jus beneficiumque.*

(*b*) In what year was the speech "de Imperio Cn. Pompei" delivered? Apart from its merits, it is interesting as forming an epoch in Cicero's oratorical career.

Translate into Latin Prose:—

The entire defeat of Antony's army made all people presently imagine that the war was at an end, and the liberty of Rome established; which would probably have been the case, if Antony had either perished in the action, or the consuls survived it; but the death of the consuls, though not felt so sensibly at first, in the midst of their joy for the victory, gave the fatal blow to all Cicero's schemes, and was the immediate cause of the ruin of the Republic. Hirtius was a man of letters and politeness, intimately intrusted with Cæsar's counsels, and employed to write his acts; but as he was the proper creature of Cæsar, and strongly infected with his party, so his views were all bent on supporting the power that had raised him, and serving his patron, not the public. In the beginning, therefore, of the civil war, when he was tribune of the people, he published a law to exclude all who were in arms with Pompey from any employment or office in the state; which made him particularly obnoxious to the Pompeians, who considered him as their most inveterate enemy.

## HISTORY AND ENGLISH LITERATURE.—*Examiner, Professor Craik.*

### ENGLISH.

1. A short, but carefully written, Essay, by every competitor, on the Pleasures and Advantages of Life at College.

2. Explain distinctly the position of the English language in what is called the Indo-European family of Languages.

3. Give an account of the English language, both in its grammar and in its vocabulary; first, as it existed before the Norman Conquest; secondly, in its present form.

4. Describe the principal differences between the English of the fourteenth century and that of the present day.

5. State what is the function that is principally performed by each of the ingredients of which our present Compound English is made up.

6. Give an account of the work called the Ormulum, and of the author's system of orthography.

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## MODERN LANGUAGES.

⁂ *Senior Scholarship* Students are expected to do the *whole* paper. To *Junior Scholarship* Students the *German* or *French* portion only of the paper is assigned.

### PHILOLOGICAL AND LITERARY QUESTIONS.

1. State what you may know respecting:

   (*a*) The German Meiſter and Minneſänger.
   (*b*) The French *Troubadours* and *Trouvères.*

2. Give some account of Herders's "Ideen zur Geſchichte der Menſchheit," &c.

3. Name some of the works of the two brothers Grimm—attended by a brief biographical sketch (in *German* preferably).

4. What do we mean (accord. to Grimm) by "Lautverſchiebung"? Define this word, and give instances of the principle itself. Show also: that the Fr. "*dorm-ir*" is *identical* with (old Sax.) "*dröm-en;*" (high Germ.) träumen; (Dutch) *droom;* (Danish) *dröm;* (old Norsk.) *draumr* (involving a change in *form* and in *meaning* of the word).

5. Define *etymologically* the Danish word "*vikingtog,*" and show the connexion of the *radical factor* of this word ("*vik*") with *oik-os.* Does the French "*guich-et*" belong to this group? and if so, according to what *established law?* Can we, moreover, show the *etymol. identity* of the French "*guich-et*" with Eng. "*wick-et,*" both as regards the *meaning* and *form* of this word?

6. Reconcile the form Mach-t (from mag, *infin.* mög-en) with the Eng. *may;* in like manner, Nach-t with Germ. nah, by the medium of the *Ang.* or *old Sax.* forms.

7. Define the terms *langue romane, langue d'oc, langue doïl, langue morotique.*

8. Explain historically the *component factors* that enter into the formation of the *French language.*

9. In what special direction has French literature most advanced since the time of Louis XIV?

10. When does the *Siècle de Louis XIV.* begin in literature? Compare any of the writers of this period with any of that immediately preceding it.

*Appendix, No. 8.*

Scholarship Examinations.

⁂ Senior Scholarship Students are expected to do one of the papers fully (French or German), and moreover engage upon the *second*. To *Junior Scholarship* Students the choice is left between either paper.

Translate into English :—

*Oreste.* De Pammène, il est vrai, la sage vigilance
D'Egisthe pour un temps trompe la défiance ;
On lui dit que les dieux, de Tantale ennemis,
Frappaient en même temps les derniers de ses fils,
Peut-être que le Ciel, qui pour nous se déclare,
Répand l'aveuglement sur les yeux du barbare.
Mais tu vois ce tombeau si cher à ma douleur ;
Ma main l'avait chargé de mon glaive vengeur,
Ce fer est enlevé par des mains sacriléges.
L'asile de la mort n'a plus de priviléges ;
Et je crains que ce glaive, à mon tyran porté,
Ne lui donne sur nous quelque affreuse clarté.
Précipitons l'instant où je veux le surprendre.

*Pylade.* Pammène veille à tout, sans doute il faut l'attendre.
Dès que nous aurons vu dans ces bois écartés,
Le peu de vos sujets à vous suivre excités,
Par trois divers chemins retrouvons-nous ensemble.
Non loin de cette tombe, au lieu qui nous rassemble.

*Oreste.* Allons.—Pylade, ah Ciel ; ah, trop barbare loi !
Ma rigueur assassine un cœur qui vit pour moi !
Quoi ! j'abandonne Electre à sa douleur mortelle !

*Pylade.* Tu l'as juré, poursuis, et ne redoubte qu'elle.
Electre peut te perdre et ne peut te servir ;
Les yeux de tes tyrans sont tout prêts de s'ouvrir :
Renferme cette amour et si sainte et si pure.
Doit-on craindre en ces lieux de dompter la nature ?
Ah ! de quels sentimens te laisses-tu troubler ?
Il faut venger Electre, et non la consoler.

*Oreste.* Pylade, elle s'avance, et me cherche peut-être.

*Pylade.* Ses pas sont épiés ; garde-toi de paraître.
Va, j'observerai tout avec empressement :
Les yeux de l'amitie se trompent rarement.

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Translate into German or French :—

Bacon maintains, that one of the great drawbacks to wholesome legislation is, that those who have written of laws have written of them either as philosophers or as lawyers, and but few as statesmen. The philosophers make imaginary laws for imaginary commonwealths : "and their discourses are as the stars, which give little light because they are so high." The lawyers, on the other hand, sin on the other tack, by looking at what law *is*, not what it *ought to be*. "The wisdom of a law-maker consists not only in a platform of justice, but in the application thereof; taking into consideration by what means laws may be made certain, and what are the causes and remedies of the doubtfulness and uncertainty of law." The great value of general learning and philosophy, in legislative matters, is very emphatically insisted on by Bacon.

*Appendix, No. 8.*

Scholarship Examinations.

Translate into English :—

Die Würgerſcene fing jetzt an, für welche die Geſchichte keine Sprache und die Dichtkunſt keinen Pinſel hat. Nicht die ſchuldfreie Kindheit, nicht das hülfloſe Alter, nicht Jugend, nicht Geſchlecht, nicht Stand, nicht Schönheit, können die Wuth des Siegers entwaffen. Frauen werden in den Armen ihrer Männer, Töchter zu den Füßen ihrer Väter mißhandelt, und das wehrloſe Geſchlecht hat blos das Vorrecht, einer doppelten Wuth zum Opfer zu dienen. Keine nocht ſo verborgene, keine noch ſo geheiligte Stätte konnte vor der Alles nachforſchenden Habſucht ſichern. Dreiundfunfzig Frauenperſonen fand man in einer Kirche enthauptet. Kroaten vergnügten ſich, Kinder in die Flammen zu werfen—Pappenheims Wallonen, Säuglinge an den Brüſten ihrer Mütter zu ſpießen. Einige liguiſtiſche Officiere, von dieſem grauſenvollen Anblicke empört, unterſtanden ſich, den Grafen Tilly zu erinnern, daß er dem Bluthade möchte Einhalt thun laſſen. „Kommt in einer Stunde wieder," war ſeine Antwort. „Ich werde dann ſehen, was ich thun werde; der Soldat muß für ſeine Gefahr und Arbeit etwas haben." In ununterbrochener Wuth dauerten dieſe Gräuel fort, bis endlich Rauch und Flammen der Raubſucht Grenzen ſetzen. Um die Verwirrung zu vermehren und den Widerſtand der Bürger zu brechen, hatte man gleich anfangs an verſchiedenen Orten Feuer angelegt. Jetzt erhob ſich ein Sturmwind, der die Flamme mit reißender Schnelligkeit durch die ganze Stadt verbreitete und den Brand allgemein machte. Fürchterlich war das Gedränge durch Qualm und Leichen, gezückte Schwerter, durch ſtürzende Trümmer, durch das ſtrömende Blut. Die Atmoſphäre kochte, und die unerträgliche Gluth zwang endlich ſelbſt dieſe Würger, ſich in das Lager zu flüchten. In weniger als zwölf Stunden lag dieſe volkreiche, feſte, große Stadt, eine der ſchönſten Deutſchlands, in der Aſche, zwei Kirchen und einige Hütten ausgenommen. Der Adminiſtrator, Chriſtian Wilhelm, ward mit drei Bürgermeiſtern nach vielen empfangenen Wunden gefangen; viele tapfere Officiere und Magiſtrate hatten fechtend einen beneideten Tod gefunden. Vierhundert der reichſten Bürger entriß die Habſucht der Officiere dem Tode, um ein theures Löſegeld von ihnen zu erpreſſen. Noch dazu waren es meiſtens Officiere von der Ligue, welche dieſe Menſchlichkeit zeigten, und die blinde Mordbegier der kaiſerlichen Soldaten ließ ſie als rettende Engel betrachten.

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Translate into English :—

„Tief in den Fels, auf dem es hängt,
Iſt eine Grotte eingeſprengt,
Vom Thau des nahen Moors befeuchtet,
Wohin des Himmels Strahl nicht leuchtet.
Hier hauſete der Wurm und lag,
Den Raub erſpähend, Nacht und Tag.
So hielt er, wie der Höllendrache,
Am Fuß des Gotteshauſes Wache;
Und kam der Pilgrim hergewallt
Und lenkte in die Unglücksſtraße,
Hervorbrach aus dem Hinterhalt
Der Feind und trug ihn fort zum Fraße

„Den Felſen ſtieg ich jetzt hinan,
Eh' ich den ſchweren Strauß begann;
Hinkniet' ich vor dem Chriſtuskinde
Und reinigte mein Herz von Sünde.
Drauf gürt' ich mir im Heiligthum
Den blanken Schmuck der Waffen um,

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Bewehre mit dem Spieß die Rechte,
Und nieder ſteig' ich zum Gefechte.
Zurücke bleibt der Knappen Troß;
Ich gebe ſcheidend die Befehle
Und ſchwinge mich behend' auf's Roß,
Und Gott empfehl' ich meine Seele.

Kaum ſeh' ich mich im eb'nen Plan,
Flugs ſchlagen meine Doggen an,
Und bang' beginnt das Roß zu keuchen
Und bäumet ſich und will nicht weichen;
Denn nahe liegt, zum Knäul geballt,
Des Feindes ſcheußliche Geſtalt,
Und ſonnet ſich auf warmem Grunde.
Auf jagen ihn die flinken Hunde;
Doch wenden ſie ſich pfeilgeſchwind,
Als es den Rachen gähnend theilet,
Und von ſich haucht den gift'gen Wind,
Und winſelnd wie der Schakal heulet.

Translate into English or French :—

Che nella luna, o in altro pianeta, si generino o erbe o piante o animali simili ai nostri, o vi si facciano pioggie, venti, tuoni, come intorno alla terra ; io non lo so, e non lo credo ; e molto meno, che ella sia abitata da uomini. Ma non intendo già come, tuttavoltachè non vi si generino cose simili alle nostre, si deva di necessità concludere che niuna alterazione vi si faccia, nè vi possano essere altre cose che si mutino, si generino e si dissolvano, non solamente diverse dalle nostre, ma lontanissime dalla nostra immaginazione, e in somma del tutto a noi inescogitabili. E siccome io son sicuro che a uno nato e nutrito in una selva immensa, tra fiere e uccelii, e che non avesse cognizione alcuna dell' elemento dell' acqua, mai non gli potrebbe cadere nell' immaginazione, essere in natura un altro mondo diverso dalla terra, pieno di animali li quali senza gambe e senza ale, velocemente camminano, e non sopra la superficie solamente, come le fiere sopra la terra, ma per entro tutta la profondità ; e non solamente camminano, ma dovunque piace loro, immobilmente si fermano ; cosa che non posson fare gli uccelli per aria ; e che quivi di più abitano ancora uomini, e vi fabbricano palazzi e città, e hanno tanta comodità nel viaggiare, che senza niuna fatica, vanno con tutta la famiglia e con la casa e con le città intere, in lontanissimi paesi ; siccome, dico, io son sicuro che un tale, ancorchè di perspicacissima immaginazione, non si potrebbe già mai figurare i pesci, l' oceano, le navi, le flotte, e le armate di mare ; così, e molto più, può accadere che nella luna, per tanto intervallo remota da noi, e di materia per avventura molto diversa dalla terra, sieno sustanze, e si facciano operazioni, non solamente lontane, ma del tutto fuori, d' ogni nostra immaginazione, com equelle che non abbiano similitudine alcuna con le nostre, e perciò del tutto inescogitabili.—GALILEI.

Translate into English or French :—

Or che diranno
I posteri di noi ? Diran che in Tito
Si stancò la Clemenza,
Come in Silla e in Augusto

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**Scholarship Examinations.**

La crudeltà. Forse diran che troppo
Rigido io fui; ch'eran difese al reo
I natali e l'età, che un primo errore
Punir non si doveva? che un ramo infermo
Subito non recida
Saggio cultor, se a risanarlo in vano
Molto pria non sudò? che Tito al fine
Era l'offeso, e che le proprie offese
Sinza ingiuria del giusto
Ben poteva obbliar—Ma dunque ro faccio
Si gran forza al mio cor? nè almen sicuro
Sarò ch'altri m'approvi? Ah non si lasci
Il solito cammin. Viva l'amico,
Benchè infedele, e se accusarmi il mondo
Vuol pur di qualche errore
M'accusi di pietà non di rigore.

METASTASIO (*La Clemenza di Tito*).

## SCIENCE SCHOLARSHIPS.—FIRST YEAR STUDENTS.

### MATHEMATICS.—*Examiner, Professor Purser.*

### ARITHMETIC AND ALGEBRA.

1. A merchant sells out some stock which he holds in the 3 per cent. Consols, and invests the proceeds in railway shares, returning four per cent. dividends. By so doing he increases his income by £39.

The Consols stand at 93. The railway hundred pound shares at 98. Find how much stock the merchant sells.

2. Find the greatest common measure of

$$285714 \quad \text{and} \quad 999999,$$
$$\text{and of} \quad (10353)^2 \text{ and } (14877)^2.$$

3. Given that the second term of a geometric series = 21, the last term = 567, the sum of the terms = 847. Find the first term.

4. Solve the equations:

$$(\alpha) \ \sqrt{a+x}+\sqrt{a-x}=\sqrt{b}.$$
$$(\beta) \ \sqrt{x^2+3x+5}+\sqrt{2x^2-6x+2}=\sqrt{3x^2+5x+1}.$$
$$(\gamma) \ x-1=2+\frac{2}{\sqrt{x}}.$$

5. Find the condition that $Ax^2+2Bxy+Cy^2$ should be always of the same sign whatever real values are assigned to $x$ and $y$.

6. Given the sum of any number of quantities. Prove that their continued product is greatest when they are all equal.

7. The two sides of a right-angled triangle which contain the right angle are 17 and 11. Calculate to three decimal places the segments into which the perpendicular let fall from the right angle divides the hypotenuse.

8. Prove that the value of $(x)$ which satisfies the quadratic $ax^2-2bx+c=0$ may be written in the form

$$\frac{b+\sqrt{b^2-ac}+mc}{m(b-\sqrt{b^2-ac})+a} \text{ where } m \text{ is perfectly arbitrary.}$$

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9. Show that if

$$x+y+z=xyz \quad 1+\{(1+x^2)(1+y^2)(1+z^2)\}^{\frac{1}{2}}=xy+yz+zx.$$

10. A starts from Belfast to walk to Lisburn, and at the same time B leaves Lisburn to walk to Belfast. When A reaches Lisburn, B has walked $2\frac{6}{13}$ miles beyond the point where he met A. Find their relative rates of walking, taking the whole distance at seven miles.

Can you give any interpretation to the negative answer?

11. Define accurately the logarithm of a number to a given base. What are the characteristics of the logarithms of 47 and ·007 to the base 3?

What are the advantages secured by selecting 10 as the base?

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### GEOMETRY AND TRIGONOMETRY.

1. Inscribe a circle in a given triangle.

2. If similar rectilineal figures be described on the three sides of a right-angled triangle, the area of the figure described on the hypotenuse is equal to the sum of the areas of those described on the sides.

3. From one extremity $A$, of the base of a triangle $ABC$, a line is drawn bisecting the opposite side in the point $M$. Prove that a line drawn through the vertex of the triangle and through the middle point of $AM$ will, when produced, cut the base $AB$ in a point of trisection.

4. Perpendiculars let fall from the vertices of a triangle upon the opposite sides meet in a point, and the circle drawn through the feet of these perpendiculars passes through the middle points of the sides.

5. Define the circular measure of an angle. What theorem is involved in the definition?

At what distance would a man six feet high subtend an angle of one minute?

6. Show that $\cos 20^\circ \cos 40^\circ \cos 80^\circ = \frac{1}{8}$.

7. Prove $\cot\frac{\theta}{2} - \cot\theta = \frac{1}{\sin\theta}$ and $\frac{1-\tan\theta}{1+\tan\theta} = \sqrt{\frac{1-\sin 2\theta}{1+\sin 2\theta}}$.

8. Prove that in any triangle

$$\begin{aligned} a\cos B + b\cos A &= c \\ b\cos C + c\cos B &= a \\ c\cos A + a\cos C &= b \end{aligned}$$

and derive from these equations the known relation amongst the cosines of the angles of a triangle.

9. In a plane triangle given base ($c=14$) vertical angle ($C=60^\circ$) and sum of side ($a+b=22$). Calculate the sides.

10. Show that if $\phi$ denote the angle which the bisector of the vertical angle of a triangle makes with the base

$$\tan\phi = \tan\tfrac{1}{2}C\frac{a+b}{a-b}.$$

11. Prove the formula

$$\tan^{-1}\frac{m}{n} + \tan^{-1}\frac{n-m}{n+m} = \frac{\pi}{4}.$$

Calculate to three places of decimals the value of $\pi$.

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## SECOND YEAR STUDENTS.

### MATHEMATICS.—*Examiner, Professor Purser.*

### ALGEBRA, TRIGONOMETRY, &c.

1. Eliminate $x$ $y$ $z$ from the equations

$$\begin{aligned} ay+bz+c&=0\\ cz+ax+b&=0\\ bx+cy+a&=0\\ cx+by+az&=0 \end{aligned}$$

2. When is it possible to express $\sqrt{a+\sqrt{b}}$ in the form $\sqrt{x}+\sqrt{y}$?

Express in this form $\sqrt{17+4\sqrt{15}}$.

3. In a certain town the annual excess of the births over the deaths has borne for the last $n$ years a given ratio $l:1$ to the population at the beginning of each year. During this period there has been a uniform annual emigration of $x$ persons. Given $a$ and $b$ the numbers in the town at the beginning and end of the period, find $x$ the yearly loss by emigration.

4. Prove that the result of eliminating $x$ between the two quadratics $ax^2+2bx+c=0$ $a'x^2+2b'x+c'=0$ may be expressed in the form

$$4(ac-b^2)(a'c'-b'^2)=(ac'+ca'-2bb')^2$$

5. Find the sum of the series $1^2+4^2+7^2+10$ &c., to $n$ terms.

6. If $a$ $b$ $c$ be three consecutive numbers, show that

$$\log_e(c)=2\log_e(b)-\log_e(a)-2\left\{\frac{1}{2ac+1}+\frac{1}{3(2ac+1)^3}+\text{\&c.}\right.$$

Given $\log_e(5)=1{\cdot}60944$
$\log_e(6)=1{\cdot}79176$

Calculate $\log_e(7)$ to five places of decimals.

7. The quadrilateral whose sides are $a$ $b$ $c$ $d$ can be inscribed in a circle. Prove that the radius of this circle is given by the formula

$$R=\frac{1}{4}\sqrt{\left\{\frac{(ab+cd)(ac+bd)(ad+bc)}{(s-a)(s-b)(s-c)(s-d)}\right\}}\text{ where }2s=a+b+c+d.$$

8. Given two sides of a triangle and the included angle, show how to calculate the third side by means of a subsidiary angle.

9. Prove that the sum of the sines of the angles of a triangle can never exceed $\frac{3\sqrt{3}}{2}$.

10. If $\alpha\beta\gamma$ are the bisectors of the angles of a triangle whose sides are $a$ $b$ $c$

$$\frac{\alpha\ \beta\ \gamma}{a\ b\ c}=\frac{4\text{ area of triangle }(a+b+c)}{(a+b)(b+c)(c+a)}.$$

11. Prove rigorously each of the following expressions for $\sin(\theta)$

$$\sin\theta=\theta-\frac{\theta^3}{1.2.3}+\frac{\theta^5}{1.2.3.4.5}-\quad\text{\&c.}$$

$$\sin\theta=\theta\left(1-\frac{\theta^2}{\pi^2}\right)\left(1-\frac{\theta^2}{2^2\pi^2}\right)\left(1-\frac{\theta^2}{3^2\pi^2}\right)\quad\text{\&c.}$$

What series can be summed by the comparison of these expressions?

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### ANALYTICAL GEOMETRY.

1. Prove the formula for transferring oblique co-ordinate into rectangular, the origin and the axis of ($x$) remaining unchanged.

*Example.*—Transform the equation $x^2+y^2+\sqrt{3}.xy=a^2$ to rectangular axes, the angle between the old axes being 30°.

2. Find the equation of the line passing through the point $x_1y_1$ and perpendicular to the line joining that point to $x_2y_2$.

Hence find the equation of the circle described upon the line joining the points $x_2y_2$ $x_3y_3$ as diameter.

3. Investigate the equation of the line bisecting the angle between the lines

$$x \cos \alpha \text{ and } y \sin \alpha - p = 0 \quad x \cos \alpha' + y \sin \alpha' - p' = 0$$

Hence prove that the three bisectors of the angles of a triangle meet in a point.

4. Find the condition that three points $x_1y_1$ $x_2y_2$ $x_3y_3$ lie in a right line.

Show that if $\frac{x_1y_2-y_1x_2}{l-m}=\frac{x_2y_3-y_2x_3}{m-n}=\frac{x_3y_1-y_3x_1}{n-l}$ this condition is satisfied.

5. A point moves so that the perpendicular let fall from it upon the base of a given isosceles triangle is a mean proportional between the perpendiculars on the sides. Find the equation of its locus, taking the base of the triangle and the perpendicular let fall from the vertex as axes.

### DIFFERENTIAL CALCULUS.

1. As ($x$) increases indefinitely, $\left(1+\frac{1}{x}\right)^x$ tends to a limit lying between 2 and 3.

Prove this, and find the differential co-efficients depending on this limit.

2. Find the differential co-efficient of $x^m$ for any value of $m$ without assuming the binomial theorem for other than positive integral exponents.

3. Differentiate

$$x\sqrt{a^2-x^2}+a^2 \sin^{-1}\frac{x}{a}; \ \tan\left(e^{\frac{1}{x}}\right) \qquad x^{\frac{1}{x}}.$$

### CONIC SECTIONS.

[N.B.—The propositions to be proved geometrically.]

1. Prove that in a parabola the subnormal is constant.

From this property can be at once deduced the radius of curvature at the vertex.

2. The tangent to an ellipse makes equal angles with the lines joining the foci to the point of contact.

3. If a conic section be inscribed in a quadrilateral, the centre lies on the line joining the middle points of the diagonals.

## ENGINEERING SCHOLARSHIPS.—SECOND YEAR STUDENTS.

### PHYSICS.—*Examiner, Dr. Stevelly.*

1. State the argument derived from the microscopic examination of the silicious exuviæ of the Diatomaceæ (Tripoli) for the extreme state of subdivision in which matter may exist.

2. Describe the process by which Woollaston obtained his fine Platina wires for micrometers, and explain the facts that must be observed, and the calculations that must be made, to determine the diameter of these wires.

3. Describe the three states in which matter is found to be capable of existing. Exemplify each of these states in the case of water, and state the leading facts as to heat, temperature and volume which distinguish each of these states from the other.

4. State the law which is found to govern the elevation and depression of liquids in capillary tubes, and explain the relation of the capillary forces which determines whether a liquid will be elevated or depressed.

5. Enumerate the triangular law of equilibrium of three forces acting on a body, and state the method of experimentally proving its truth.

6. Explain when a heavy body constrained to move freely round a fixed axis or along a rigid surface, will move or be in equilibrio, and describe and distinguish the three states of equilibrium in one or other of which it may be found.

7. Describe the balance, state the requisite properties of a good balance, the adjustments by which they are attained, and explain the principle and method of alternate weighing.

8. Describe the method adopted by Captain Kater for determining the length of the pendulum which oscillates in a second at the Royal Observatory, Greenwich; state the length of that pendulum as fixed by the Act of Parliament, and point out the property of the pendulum on which the method was founded.

9. If a heavy body be plunged beneath the surface of a heavy fluid, explain what determines whether it will, if left to itself, sink further, rise to the surface, or remain without any tendency to sink or swim. State the magnitude and direction of the force which, at any instant, acts to change its position; and if it rise, explain how far it will rise.

10. Describe the experiments which show that air is elastic. State the laws which are found to govern the elastic force of air, and give an outline of the experimental proof of these laws.

11. Describe the action of the tourmaline on light, and explain how, and why, two transparent tourmaline crystals may be so arranged as even to obliterate the mid-day sun if interposed between it and the eye.

12. Describe the method of determining the plane of the magnetic meridian by the aid of a well-mounted dipping needle alone, and explain the principle of this method of observing it.

## GEOMETRICAL DRAWING.—*Examiner, Professor James Thomson.*

1. In Descriptive Geometry:—To draw a plane through a given point and through a given line.

2. Given the traces of a plane, to find the angles which the plane makes with the two planes of projection, and also the angle between the traces.

3. Explain, without a diagram, the principle on which to draw, through a given point, a straight line which shall meet two given straight lines.

4. If two straight lines be given by their projections, how can you ascertain whether the lines intersect one another or not?

5. In the accompanying diagram,* a straight line $a\ b$, $a'\ b'$, and a sphere, are given by their projections. Find the projections of the points in which the straight line cuts the surface of the sphere.

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* Diagram not printed.

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6. Test the accuracy of your result in the foregoing question by finding the true distance from the centre of the sphere to each of the points you have determined as those in which the given line cuts the given spherical surface. The distance in each case ought to come out equal to the radius of the sphere.

7. Explain the method of drawing in perspective, by the use of vanishing points and measuring points; and show, at the same time, to what kind of objects this method is applicable.

8. Criticise the following extracts from authors on Perspective:—

(*a*) "The *point of sight* is that spot to which the eye of the spectator is supposed to be directed when he looks straight before him."—*Penley on Perspective*, p. 10.

(*b*) "An object is in parallel perspective when one side, or the front, of that object immediately faces the spectator, and lies parallel to his own body, while the lines of the other side recede directly from him; as in the case of a direct view down a passage or into a street or room."—*Penley on Perspective*, p. 11.

(*c*) "The *vanishing points*, lying in the horizontal line" [are the] "points to which the straight lines of all objects in angular perspective converge."—*Penley*, p. 16.

(*d*) "In Geometrical Drawing" [meaning orthographic projection] "all lines that are parallel in the original object are drawn parallel in the representation; whereas, in perspective drawing, all representations of parallel lines incline towards each other, and tend to the same point. This point is always placed on the horizontal line" [or horizon line of the picture] "and is called the vanishing point."—*Pyne on Perspective*, p. 10; also, p. 99.

(*e*) "Those lines" [of the original object] "that lie in a direction parallel to the plane of delineation" [or picture surface] "have no vanishing point, but are represented by lines parallel to the ground line of the picture" [that is, to the base or construction-base of the picture]. —*Pyne on Perspective*, p. 92.

9. Explain the general principles of the methods ordinarily adopted for finding the projections of the lines of intersection of bodies bounded by plane or curved surfaces.

10. Assume a "ground line," or intersection of two planes of projection, across the middle of your sheet of paper. With a radius of $\frac{3}{4}$ of an inch describe a circle, with its centre 2 inches below the ground line. Inscribe in the circle a regular hexagon having two sides parallel to the ground line. Take this hexagon as the base of a vertical six-sided prism, half an inch in height, with a regular six-sided pyramid standing on the top of the prism as base, and having its height 1 inch. Draw the horizontal and vertical projections of the object so made up, and draw its shadow cast on the horizontal plane of projection. Also, distinguish between the illuminated faces of the pyramid and those turned away from the light. In this you are to assume the light as falling in the direction ordinarily used in the projection of shadows.

11. Make an isometrical drawing of a house in outline, according to the dimensions shown in the accompanying sketch.* The natural scale, or scale of the model projected isometrically is to be $\frac{1}{8}$th of an inch to a foot.

12. Make another isometrical drawing of the same house on an isometric scale of $\frac{1}{8}$th of an inch to a foot.

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* Sketch not printed.

Scholarship Examinations.

### CHEMISTRY.—*Examiner, Dr. Andrews.*

1. If a bar of iron at the temperature of 100°C. be plunged into an equal weight of mercury at 0°C., what will the final temperature of the two metals be, all corrections being made for cooling and for the containing vessel (spec. heat of mercury 0·033, of iron 0·114).

2. Give an account of the result of recent researches on the absorption of heat from low sources (100°C.) by different gases and vapours.

3. Describe the method of obtaining ice by means of ether or liquid ammonia, and explain the theory of the process.

4. Give an account of the chemical action of the different parts of the solar spectrum.

5. When oxide of copper is reduced by hydrogen gas, a large quantity of heat is evolved, while this does not occur with the oxide of iron; explain the cause of this difference.

6. If the density of the vapour of sulphur be assumed to be double that of oxygen in the sulphur compounds, what will be the composition by volume of sulphurous acid gas and of sulphuretted hydrogen?

7. A solution recently prepared by anhydrous phosphoric acid precipitates albumen, but loses that property after being boiled for some time; explain this change of property.

8. How is hydrofluoric acid prepared, and what are its chief properties?

9. Under what conditions do chlorine and carbonic oxide combine, and what is the composition of the compound?

10. What are the tests for cyanogen when in combination with hydrogen.

11. Write the formulas of the following bodies, viz.:—ferrocyanide of potassium, ferridcyanide of potassium, Prussian blue, alum, tartar emetic, potash-chloride of platinum.

12. Give in symbols the reactions which take place when sulphuretted hydrogen is passed through acid solutions of arsenious acid and of tartar emetic.

13. What are the principal ores of iron? State also their composition, and particularly that of the clay iron stone.

14. Give an account of the compounds of mercury with oxygen and chlorine.

15. How is the density of a vapour determined?

16. How is the hardness of a water determined?

17. State the composition of cast iron, and also of the slag of the iron furnaces.

18. Give an account of the mode of reducing lead from the native sulphuret.

19. Describe the tangent galvanometer.

20. State Ohm's law.

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## THIRD YEAR STUDENTS.

### NATURAL PHILOSOPHY.—*Examiner, Dr. Stevelly.*

1. A pole 6 feet long projects perpendicularly from a vertical wall. Its outer end is tied up to a hook in the wall, 8 feet above the pole; and to that outer end a body which weighs 160 lbs. is suspended. Find the strain which endangers the breaking of the tie, and the thrust which endangers the pole, respectively. State the rule by which you work, and prove its truth.

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2. State where the centre of gravity of a pyramid (also of a cone) of uniform density is placed, and prove what you assert.

3. Find the expression for the force which, acting horizontally at the centre of a wheel whose radius is $R$, and which is loaded at its centre with the total weight $W$, will just lift that weight over an obstacle, whose weight is $h$, placed before the wheel.

4. A wheel of 6 feet in diameter, mounted with an axle of 7 inches diameter, has a flexible rope 2 inches in diameter wound round the axle, and strained in a direction which makes an angle of 30° with the axis of the wheel and axle, by a force of 36 cwts.; find the power which, acting tangentially to the wheel, would produce equilibrium.

5. Show that a number of forces will equilibrate, if they act perpendicularly to the faces of a solid polygon, in proportion to the lengths of the sides on which they act, and in directions which all meet at one point.

6. A free body moves from rest under the action of a uniformly accelerating force. It is moving at the rate of 60 ft. 8 in. at the end of the third second; find the distance it has moved over, and the number which expresses the accelerating force.

7. Enunciate the general rates by which you find these numbers in the last question.

8. With the data of the last two questions, find the space the body would move over in the fourth second, the force continuing to act; and the space it would describe in the fourth second if all external force ceased.

9. The earth revolves on its axis in 86,164 seconds mean time; find the number which expresses its angular velocity, stating clearly the units to which that number is referred.

10. Explain how the angle is found at which the rudder of a ship must be turned to the keel, in order to obtain the greatest steering effect.

11. On a day on which the barometer stands at 29·73 inches, calculate the pressure of the air on each square inch of surface exposed to it.

12. Explain what opticians mean by the absolute index of refraction, and by the relative index, and how, when you know the absolute indices of two media, you find the ratio of the sines of incidence and refraction of light passing from one of these into the other.

## SURVEYING, LEVELLING, MENSURATION, &c.—*Examiner, Professor James Thomson.*

1. Set the horizontal limb of the theodolite before you to read 123° 43′.

2. The water surface in a tank when full is a rectangle of 300 ft. × 200 ft. The slopes of the internal faces are 2 horizontal to 1 vertical. What quantity of water would be contained in the uppermost 10 ft. of depth?

3. Give an easy demonstration of the prismoidal formula in the following form:—

$$\text{Content} = bl.\frac{h+h'}{2} + \frac{r}{3}(h^2 + hh' + h'^2)l.$$

4. Take out from Sir John Macneill's Tables, and from Bidder's Table, the quantity of earth in a cutting with the following data:—

Formation width = 30 ft. Slopes, $1\frac{1}{2}$ to 1.
End heights, 20 and 33 feet.
Length, 1 chain of 66 feet.

5. If a transit theodolite of the kind you have seen in this College be already in perfect adjustment for measuring angles of azimuth, what are the additional adjustments required to put it in order for measuring

angles of altitude? Recollect that one is of a permanent kind, and that another is temporary, requiring to be made each time that the instrument is taken from its box, and placed on its stand for use. In Simms on Instruments, it is stated that the horizontal wire should have a *definite position in respect to the divisions of the vertical limb.* State whether this is correct or not, and give your reasons.

6. How may the area comprised within a boundary surveyed by traversing be computed?

7. How may the ranging and chaining of a straight line, interrupted both as to seeing and walking along it by an obstruction, be conducted in each of the two following cases, the ground in both cases being open and accessible past the obstruction, on one side at least:—First, when the station at the commencement and the direction of the line from that forward to the obstruction are given; and second, when the stations at both extremities are given, but there is no point in the line between them from which they can both be seen?

8. Show that in Gravatt's level there is no exact height in the telescope tube at which the horizontal wire ought necessarily to be adjusted, and explain the bearing of this on Gravatt's rules for the adjustment of his instrument.

9. Explain how to set out the "*half breadths*" for a railway cutting in sidelong ground.

10. Explain how, in a theodolite, an image is formed of an object towards which the telescope is directed; and how the cross-wires are used in respect to the image so formed.

11. If a telescope such, for instance, as that of a theodolite, or levelling instrument, be directed to a set of objects, so as to have its circular field of view occupied by their image, and if a portion of the object-glass, such as one semi-circular half of it, or more, be obscured by an opaque cover applied close to it, how will the field of view, as seen by looking into the telescope in the ordinary way, be affected? Explain the reasons for your answer fully and clearly.

12. Criticise the following extract from Pyne on Perspective:—

"The rules of perspective are deduced from the science of optics, depending on the fact of vision being caused by rays of light passing from the object seen into the eye, and forming an image at the back of it, similar to the reflection of an object in a mirror."—(*Pyne*, p. 81.)

## GEOLOGY.—*Examiner, Dr. Wyville Thomson.*

1. Sketch generally the geological structure of county Antrim, and give an ideal section through any part of it.

2. Name the sub-divisions of the Devonian system in ascending order, sketch their distribution in Britain, and name one or two of the characteristic fossils of each sub-division.

3. Name some of the principal coal fields of Europe and America, stating the geological age of the coal, and the conditions under which it is found in each.

4. Give an outline of the distribution, in geological time, of the various groups of fossil crustacea.

5. What is meant by "denudation?" and what are its results? Give some marked examples.

6. What causes chiefly regulate the distribution of plants? Give an outline of the principal zones of vegetation. What is meant by "representative" species? What is meant by "specific centres," and what causes regulate the distribution of plants from such centres?

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Scholarship Examinations.

## MEDICAL SCHOLARSHIPS.—SECOND YEAR STUDENTS.

### CHEMISTRY.—*Examiner, Dr. Andrews.*

1. If a bar of iron at the temperature of 100°C. be plunged into an equal weight of mercury at 0°C., what will the final temperature of the two metals be, all corrections being made for cooling and for the containing vessel (spec. heat of mercury 0·033, of iron 0·114)?

2. Give an account of the result of recent researches on the absorption of heat from low sources (100°C.) by different gases and vapours.

3. Describe the method of obtaining ice by means of ether or liquid ammonia, and explain the theory of the process.

4. Give an account of the chemical action of the different parts of the solar spectrum.

5. When oxide of copper is reduced by hydrogen gas, a large quantity of heat is evolved, while this does not occur with the oxide of iron; explain the cause of this difference.

6. If the density of the vapour of sulphur be assumed to be double that of oxygen in the sulphur compounds, what will be the composition by volume of sulphurous acid gas and of sulphuretted hydrogen?

7. A solution recently prepared of anhydrous phosphoric acid precipitates albumen, but loses that property after being boiled for some time; explain this change of property.

8. How is hydrofluoric acid prepared, and what are its chief properties?

9. Under what conditions do chlorine and carbonic oxide combine, and what is the composition of the compound?

10. What are the tests for cyanogen when in combination with hydrogen?

11. Write the formulas of the following bodies, viz.:—ferrocyanide of potassium, ferridcyanide of potassium, Prussian blue, alum, tartar emetic, potash-chloride of platinum.

12. Give in symbols the reactions which take place when sulphuretted hydrogen is passed through acid solutions of arsenious acid and tartar emetic.

13. What are the principal ores of iron? State also their composition, and particularly that of the clay iron stone.

14. Give an account of the compounds of mercury with oxygen and chlorine.

15. How is the density of a vapour determined?

16. State the composition of acetic acid and of aldehyde, and show how these bodies are related to alcohol.

17. What are the relations between the hippuric and benzoic acids, and how may they be derived from one another?

18. Give an account of the so-called protein compounds.

19. What are the alcaloids of the nux vomica, and their characteristic reactions?

20. Explain the formation of carbonate of ammonia in urine, when in a state of decomposition.

### ANATOMY AND PHYSIOLOGY.—*Examiner, Dr. Redfern.*

1. Name the specimens numbered 1 to 6. State from which side of the body each was obtained, and describe the characteristic markings on which your opinion is based.

2. Give an account of the attachment, insertion, relations, and action of the biceps muscle of the arm.

2. By what characters would you recognise the following teeth :—the first lower bicuspid, the first and the third lower true molars, and the molars of the temporary set.

4. State the characters of the red and white corpuscles of man's blood; and describe those corpuscles which possess remarkable or exceptional characters in the blood of vertebrata.

5. For what purposes is aliment required in the human body? What principles are essential in the food of a healthy adult man? What would happen if the diet were confined to a single alimentary principle.

### BOTANY.—*Examiner, Dr. Wyville Thomson.*

1. Give the characters of the natural order Leguminosæ, and of its sub-orders. Name the principal medicinal and economic plants belonging to the different sub-orders, indicating the general therapeutic properties of each sub-order, and sketch the geographical distribution of the order and sub-orders.

2. Describe in detail the structure of the flower and fruit in any one grass.

3. Describe the reproductive organs, and the modes of reproduction in Marchantia.

4. Describe a tuber, a corm, a rhizome, and a bulb, and give examples of the three last, from two endogenous natural orders.

5. Describe the mode of reproduction in one of the olive sea-weeds (*Fucaceæ*).

6. Describe the structure and reproduction of the Desmideæ, and state in what they differ from the Diatomaceæ.

### ZOOLOGY.

1. Describe the structure of the base of the brain-case in the cod, the lamprey, and the lancelet (*Amphioxus*).

2. Describe the changes which take place in the organs of respiration and circulation during the development of the tadpole and young frog.

3. Describe the general structure of the leech, detailing the form and arrangement of the nervous system, and the organs of nutrition and of reproduction.

4. Name the most common internal parasites met with in the human body.

5. Describe the organs of respiration of the Arachnida, and contrast them with those of the Crustacea and Insecta.

6. Describe the origin, structure, and relations of the medusoid gonophore of one of the Corynidæ.

## THIRD YEAR STUDENTS.

### ANATOMY AND PHYSIOLOGY.—*Examiner, Dr. Redfern.*

1. Name the specimens numbered 1 to 6. State from which side of the body each was obtained, and describe the characteristic markings on which your opinion is based.

2. State the attachment, insertion, course, relations, and action of the peroneus longus muscle.

3. Describe an ultimate lobule of the human lung, and the distribution and arrangement of its blood-vessels.

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4. What theories of the coagulation of the blood have been propounded by Richardson, Lister, Brücke, and Schmidt, respectively.

5. What is the action of the spleen upon the blood? Distinguish those changes in the splenic blood which you believe to have been satisfactorily determined, from the others.

### PRACTICAL CHEMISTRY.—*Examiner, Dr. Andrews.*

1. Describe the different methods of taking the density of a solid body, and the precautions required in order to secure an accurate result.
2. What are the characteristic spectrum lines of potassium, sodium, lithium, and strontium?
3. State the composition of the ammonio-magnesian phosphate, and the method of analyzing it, so as to show the presence of all its constituents.
4. Explain in symbols the reaction which takes place when the proto-sulphate of iron is converted into a mixture of sesqui-sulphate and sesqui-nitrate by the action of nitric acid.
5. What are the blowpipe tests for the oxides of manganese, cobalt, copper, and tin?
6. What are the distinguishing properties of calomel and arsenious acid?
7. What is the action of re-agents on a solution of corrosive sublimate?
8. Give an account of the preparation and leading properties of meconic acid.
9. How would you separate hippuric acid from human urine, and exhibit its characteristic properties?
10. Describe Liebig's method of determining the amount of urea in urine.
11. What are the tests for gelatine? Mention also some of its derivatives.

## FOURTH YEAR STUDENTS.

### ANATOMY.—*Examiner, Dr. Redfern.*

1. Name the specimens numbered 1 to 6. State from which side of the body each was obtained, and describe the characteristic markings on which your opinion is based.
2. Describe the ligaments which connect the sixth rib with the vertebræ, stating the position, attachments, and appearance of each ligament.
3. Describe, in exact order, the steps of such a dissection as will expose the popliteus muscle. No description of the parts is required, except such as is necessary for their recognition.
4. Where are branches of the fifth pair of cranial nerves distributed upon skin and membrane. Mention the extent of distribution, together with each named branch of nerve.

### PHYSIOLOGY.

1. Mention the parts of the human body in which pigment exists, and describe each of the structures in which the pigment is contained.
2. Describe fully the microscopical characters of the human dentine, and mention the modifications of that structure in the teeth of animals.

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3. What relation maintains in point of time between the pulsation in the arteries of the extremities and the second sound of the heart? What results have been arrived at by the Sphygmograph, as to the influence of the heart on the column of blood in the arteries.

4. Explain the nature of the following acts; state the parts of the nervous system concerned in the production of each; and illustrate each by an example. The acts are:—1st, reflex; 2nd, consensual; 3rd, emotional; 4th, ideo-motor; and 5th, volitional acts.

### THEORY AND PRACTICE OF MEDICINE.—*Examiner, Dr. Cuming.*

1. Give the diagnostic signs which enable Typhus to be distinguished from Typhoid Fever, and state in what respects the treatment of the one disease differs from that of the other.

2. What is the pathology of the different forms of softening of the brain?

3. How can functional be distinguished from organic murmurs of the heart?

4. State the anatomical characters observed after death from acute dysentery.

5. Give the pathology of cirrhosis of the liver.

6. How would you treat a case of acute peritonitis occurring in a healthy subject?

## SENIOR SCHOLARSHIPS.

### BOTANY.—*Examiner, Dr. Wyville Thomson.*

1. Describe the early stages of the development of the embryo in any one flowering plant.

2. Describe the fruit and the development of the embryo in the Marsileaceæ.

3. Give the mode of development and the structure of phytozoa (spermatozooids), and describe the conditions under which they occur in *Chara.*

4. Describe some of the leading forms of placentation. What was Schleiden's view as to the origin of the placenta, and in what does his view differ from that adopted by many botanists? In what British natural orders do we meet with a free central placenta? Describe the early stages in the development of such a placenta, as it has been observed in some of the Caryophyllaceæ.

5. Contrast the dog-hep with the fig, detailing the homologies of the parts of each during the successive stages of their development.

6. Give the characters of the genus *Rosa*, and state the particulars in which it differs from *Pyrus*, *Crataegus*, *Potentilla*, *Rubus*, and *Fragaria.*

### ZOOLOGY.

1. Describe the structure, mode of development, and mode of action of striated muscular tissue.

2. Describe some of the more marked modifications in the form and situation of the liver in the Invertebrata.

3. Describe the structure of a compound eye.

4. State in detail the structural and developmental characters which distinguish Amphibia from Reptiles and Fishes.

5. Describe the centre of the nervous system, and the distribution of

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Scholarship Examinations.

the principal nervous trunks in a brachyurous crustacean, and contrast in detail the nervous system of such a crustacean with that of an Annelid.

6. Describe the vascular and respiratory systems of a spider, a leech, an insect, an Echinoderm, and a Mollusk.

7. Describe the development of the embryo and young in the Mollusca Nudibranchiata.

8. Describe a characteristic example of each of the orders of Actinozoa.

9. Give the classification of the Rhizopods adopted by Carpenter, with the characters of the leading groups.

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## CHEMISTRY.—*Examiner, Dr. Andrews.*

1. State the changes required in the ordinary atomic weights according to the unitary system, and show how, with these atomic weights, the vapour-volumes of water, hydrochloric acid, ammonia, and other compounds, will be double the corresponding volumes of the elementary bodies.

2. What is the law of the diffusion of the gases, and how has it been established?

3. The following is the composition of the mineral augite, as given by analysis:—

| | |
|---|---|
| Silica, . . . . . . | 54·8 |
| Lime, . . . . . . | 24·8 |
| Magnesia, . . . . . | 18·5 |

Calculate its formula ($Si = 14$; $Ca = 20$; $Mg = 12$; $O = 8$).

4. How would you analyse gunpowder?

5. How would you determine the amount of potash in feldspar (a silicate of alumina and potash) by the hydrofluoric acid method?

6. Give the general formulas of all the derivatives from alcohol.

7. What are the constituents of coal gas, and how would you analyse a given volume of it?

8. State the general method of extracting thallium from the "flue dust" of the pyrites chambers, and describe its leading properties.

9. What are the relations of glycol and glycerine to ordinary alcohol? State also their formulas.

10. Describe Cagniard de la Tour's experiments on the conversion, under great pressures, of liquids into vapours.

⁂ In addition to answering the above questions, the Candidates were required to perform a number of qualitative analyses.

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## MODERN HISTORY.—1864.—*Examiner, Professor Craik.*

### The last 14 Chapters of *The Student's Hume.*

1. Set down in order the English Kings and Queens Regnant from the beginning of the seventeenth century to the present day, with the date of the accession of each.

2. State, and explain in the order of time, all the cases of succession to the Crown since Elizabeth, in which the father has not been followed by his eldest son.

3. Enumerate the principal Parliamentary leaders on the popular side at the commencement of the reign of Charles I., and notice, very shortly, anything remarkable or memorable in the subsequent career or end of any of them.

4. Distinguish by dates and other such brief descriptive particulars, but without going into details, the Petition of Right, the Declaration of Rights, the Bill of Rights, and the Scotch Claim of Rights.

5. Give the dates of the commencement and termination of the three Dutch Wars of the seventeenth century, of the War of the Spanish Succession, of the Seven Years' War, of the War of American Independence, and of the Wars of the French Revolution.

6. Explain, with as much brevity as possible, the terms Puritans, Delinquents, Roundheads, Cavaliers, Whigs, Tories, Trimmers, Petitioners, Abhorrers, Court and Country Parties, noting when they first came into use.

7. Give an account of the Act of Settlement.

8. Write a rapid sketch of the Peninsular Campaigns of Wellington, confining yourself to the principal battles, and giving as many dates as you can.

9. Give the dates of the Acts of Union with Scotland and with Ireland, and explain the representation in the two Houses of Parliament thereby established for each country.

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1. Enumerate, in their order, with the dates wherever you can give them, the successive English Parliaments from the accession of James I. to the deposition of James II.

2. Explain what course was taken for the calling of a Parliament in the extraordinary circumstances, first, of the Restoration, and again, of the Revolution.

3. Sketch either of the following scenes (not forgetting the date):—The intrusion of Charles I. into the House of Commons in quest of the Five Members; or, the expulsion of the Long Parliament by Cromwell.

4. Enumerate the principal battles fought in England and Scotland in the course of the ten years that followed the breaking out of the war between Charles I. and the Parliament, giving the date of each, the commanders on both sides, and the issue.

5. Enumerate in their order, and with their dates, the great Continental victories of Marlborough, adding the names of the commanders to whom he was opposed on each occasion.

6. Give an account of any one of the following battles:—The Boyne, La Hogue, Dettingen, Fontenoy, Prestonpans, Culloden, Bunker's Hill, The Nile, Assaye, Waterloo, The Alma.

7. State the circumstances (always with the dates) of the deaths of Wolfe, of Nelson, and of Sir John Moore.

8. Enumerate, with the dates, the principal English Administrations, or Premierships, from that of Sir Robert Walpole to that of Lord Liverpool.

9. Sketch the last public appearance of Chatham.

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## MODERN HISTORY.—1865.—*Examiner, Professor Craik.*

1. Describe the person and character of King William III.

2. State how King William formed his first ministry, and upon what principle he continued or endeavoured to appoint the servants of the Crown throughout his reign.

3. Give an account of the First Treaty of Partition, and of what was its result.

4. Give the dates of the accession of Charles I.; of the passing of the Petition of Right; of the assembling of the Long Parliament; of the

King's attempt to seize the Five Members; and of his erection of his standard at Nottingham.

5. Give an account of the affair of Wood's Halfpence.

6. Whom did George I., George II., his son Frederick, and George III. marry?

7. Mention the distinguished personages connected with the question of the Spanish Succession, or with the Revolution in England, who died one in each of the four years from 1699 to 1702 inclusive, adding, if you can, the *month* in which each death took place.

8. Give an account of the three most remarkable English publications produced by the first outbreak of the French Revolution.

9. Give an account of the marriages of James II., of his son, and of his grandson.

1. Sketch the character of Oliver Cromwell.

2. Explain, not in a tabular form, but with precision, in so many distinct paragraphs, the claims of the several candidates for the succession of Charles II. of Spain.

3. Give an account of the loss of the Royal George.

4. Describe the battle of Dettingen.

5. Give an account of the American Declaration of Independence.

6. Sketch rapidly the course of the Scottish Rebellion of 1745, only mentioning in the order of their sequence the principal events, without going into details.

7. Explain the origin of the Seven Years' War.

8. Describe the trial and execution of Lord Russell.

9. Give an account of the American Stamp Act and Tea Acts, and of the manner in which the first export of tea under the new system was received in the Colonies.

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## LAW SCHOLARSHIPS.—FIRST YEAR STUDENTS.

### ENGLISH LAW.—*Examiner, Professor Molyneux.*

#### REAL PROPERTY.

1. Why, from the nature of the property, is a deed necessary to pass incorporeal estate?

2. What is the difference between the following estates, *in relation to tenure?* viz., a lease to A for 99 years; a lease to A for 99 years, if B shall live so long; a lease to A for 3 lives; a lease to A for 99 years, if he, A, shall so long live.

3. What is the difference between legal and equitable estates in relation to the rights and remedies of the owners?

4. What is the legal meaning of the word "tenant" in our law?

5. What tenure is essential to constitute an estate of inheritance?

6. A, seized of Blackacre and Whiteacre in fee simple, grants Blackacre to B for 1000 years, and grants Whiteacre to C. How do those estates differ in point of duration?

7. If lands be given to a man and the heirs male of his body, and he has issue only a daughter, who has issue a son, and dies; what is the effect as to the estate given?

8. What condition is imposed upon a tenant in tail *in remainder*, who desires to bar remainders over and reversion which does not apply to tenant in tail *in possession?*

9. Tenant in fee-simple in Blackacre, being also tenant for 1000 years in Whiteacre, dies; what difference exists as to the devolution of those several interests respectively?

10. A tenant of lands in fee-simple grants to B for his life, remainder to the right heirs of B. B conveys the lands to a stranger in tail, and dies leaving one son; what are the rights of such son in relation to those lands?

11. What state of facts is essential to entitle a remainder-man to the benefit of his remainder after the determination of the particular estate.

12. Three joint-tenants in fee-simple; one of them releases his share to another of the three; what is the effect of such release upon the joint-tenancy?

13. What are the rights of a husband with respect to his wife's real estate?

14. What is the mode by which married women may convey their estates in fee-simple since the 3rd and 4th Wm. IV. in England, and 4th and 5th Wm. IV. in Ireland?

15. What advantage and disadvantage have accrued to married women by the Dower Act, 3rd and 4th Wm. IV.?

16. What is the difference between privity of contract and privity of estate? Give an example of each.

17. A, by bargain and sale, conveys a fee-simple estate to B and his heirs to the use of C and his heirs; what estates, legal or equitable, do B and C respectively take? and state the reasons.

18. What are the formalities prescribed by the 1st Vic. to constitute a valid execution?

19. What change has been effected by the Statute of Descents, 3rd and 4th Wm. IV., as to the person from whom descent is to be traced?

20. If, before the statute 3rd and 4th Wm. IV., tenant in fee-simple died, leaving his father his sole blood relation surviving, upon whom would the lands devolve?

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## JURISPRUDENCE.—*Examiner, Professor Leslie.*

1. How are defects in the law, arising from *omission*, to be remedied, according to Lord Bacon?

2. State the substance of Lord Bacon's aphorisms respecting *retrospective* laws.

3. State the causes of *obscurity* in laws, according to Lord Bacon.

4. "That industry which aims at something more than necessary subsistence, was established in cities long before it was commonly practised by the occupiers of land in the country." How is this to be accounted for by the state of the law in town and country respectively, according to Adam Smith?

5. Define Law, and Positive Law, distinguishing the latter from *positive morality.*

6. What are the ideas comprehended by the word *command?*

7. Customary Law has been treated by some writers as "an exception to the proposition that laws are commands." State their argument, and Mr. Austin's answer to it.

8. What are the distinguishing marks of sovereignty, and of an independent political society?

9. "It follows from the *essential difference of positive law*, and from the nature of sovereignty, that the power of a monarch is incapable of legal limitation." Explain this.

10. What were the original functions of the English jury, and what

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is the connecting link between them and the functions of the modern jury?

11. "The laws of the Anglo-Saxon Kings are as different from those collected by Glanville as the laws of two different nations." What proof does Hallam adduce in support of this proposition?

12. Did William the Conqueror introduce the Feudal System into England?

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## SECOND YEAR STUDENTS.

### EQUITY.—*Examiner, Professor Molyneux.*

1. In what leading particulars does Equity, as administered in our courts, differ from law?

2. How is the equitable jurisdiction classified *in its relation to that of Courts of Common Law?*

3. What are the several subjects, in detail, upon which Courts of Equity exercise jurisdiction?

4. Where equities are equal, as between plaintiff and defendant, what is the course of the court?

5. In what cases does "ignorantia legis" constitute a legitimate element in plaintiff's claim to redress in Courts of Equity?

6. In what cases do Courts of Equity grant relief on the ground of "*mistake*" *in matters of fact?*

7. Why do Courts of Equity administer relief in the case of "lost deeds," notwithstanding that Courts of law grant relief in such cases?

8. In what instance will Courts of Equity deny relief in a suit for revocation of contract, although there has been non-communication of facts?

9. In what cases do the statutes of Elizabeth in England, followed by corresponding acts in Ireland, treat conveyances as fraudulent? and to what extent were conveyances void for fraud before the statutes?

10. If A procure the conveyance of an estate from B by fraud, and afterwards sells the estate, under what state of facts will a Court of Equity decree relief to B as against the purchaser?

11. In cases of *bargains with expectant heirs*, what is the principle upon which Courts of Equity exercise their jurisdiction for or against the purchaser, under the circumstances of each case?

12. Are there any, and what, cases of fraud in which equity denies relief?

13. What is the provision of the Statute of Limitations in relation to cases of concealed fraud?

14. How far does *inadequacy of price* entitle a vendor to relief in equity?

15. When is a settlement considered, in equity, to be a fraud on the husband's marital rights?

16. On what terms alone will a plaintiff obtain relief by having a transaction set aside for fraud?

17. If an estate be sold for a certain sum of money and an annuity for the life of the vendor, and the vendor dies before the receipt of any gale of the annuity, will equity grant his representatives any relief?

18. On what principle do Courts of Equity grant relief under the head of *constructive fraud*, notwithstanding the maxim that "*Fraud will not be presumed?*"

19. What will amount to fraud in a purchaser concealing from the

vendor any advantage to the latter in the bargain of which the former is ignorant?

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20. What is the nature of the relief granted by Courts of Equity in the case of a written contract obtained through fraud?

## THIRD YEAR STUDENTS.

### LAW OF CONTRACT.—*Examiner, Professor Molyneux.*

1. What abuses led to the enactments of the statute of frauds in relation to contract? and by what means do its provisions aim at the accomplishment of its object? and how are the exceptions contained in the clauses relating to the sale of goods reconcilable with its spirit?

2. What acts are necessary to constitute a valid deed?

3. What acts, according to the civil law, were sufficient to give the same efficacy to a parol contract as the Common Law of England confers upon a deed?

4. What statutable modification of the provisions of the statute of frauds has been effected in relation to guarantees?

5. What condition on the part of the vendor is implied in an ordinary contract for the sale of lands?

6. Goods ordered verbally from a commercial traveller, and consigned by the vendor to the vendee through a common carrier, whether by sea or land, at whose risk are the goods while in course of transmission?

7. What is the meaning of the expression "general average" in marine commerce?

8. What is the consideration which sustains the action upon a common guarantee?

9. In what instance will an action *not lie* on an undertaking to pay the debt of another, although reduced to writing, and signed by the person sought to be charged?

10. How many kinds of contract, in relation to their evidence, are known to our law? Specify them.

11. State what change in the right of creditors *inter se* is effected by the operation of the Bankrupt Law.

12. What act of a creditor toward his debtor discharges a surety from his illegal liability as such?

13. What redress has the assignee of a chose in action against the debtor, and what parties must be made privy to the proceeding?

14. What is the implied duration of a tenancy from year to year?

15. What is the nature of the contract implied as between the drawer of a bill of exchange and his indorsee?

16. What is a "charter party," and what a "bill of lading"?

17. Why is a warranty given subsequently to a sale invalid?

18. On a sale of grain, under what circumstances is a warranty that it will grow implied?

19. On what principle, and under what circumstances, is a master liable for the price of goods obtained by his servant on the master's credit, but converted to his own use?

20. What is the difference between a general and particular lien?